10228

B-24 Liberator

David Doyle

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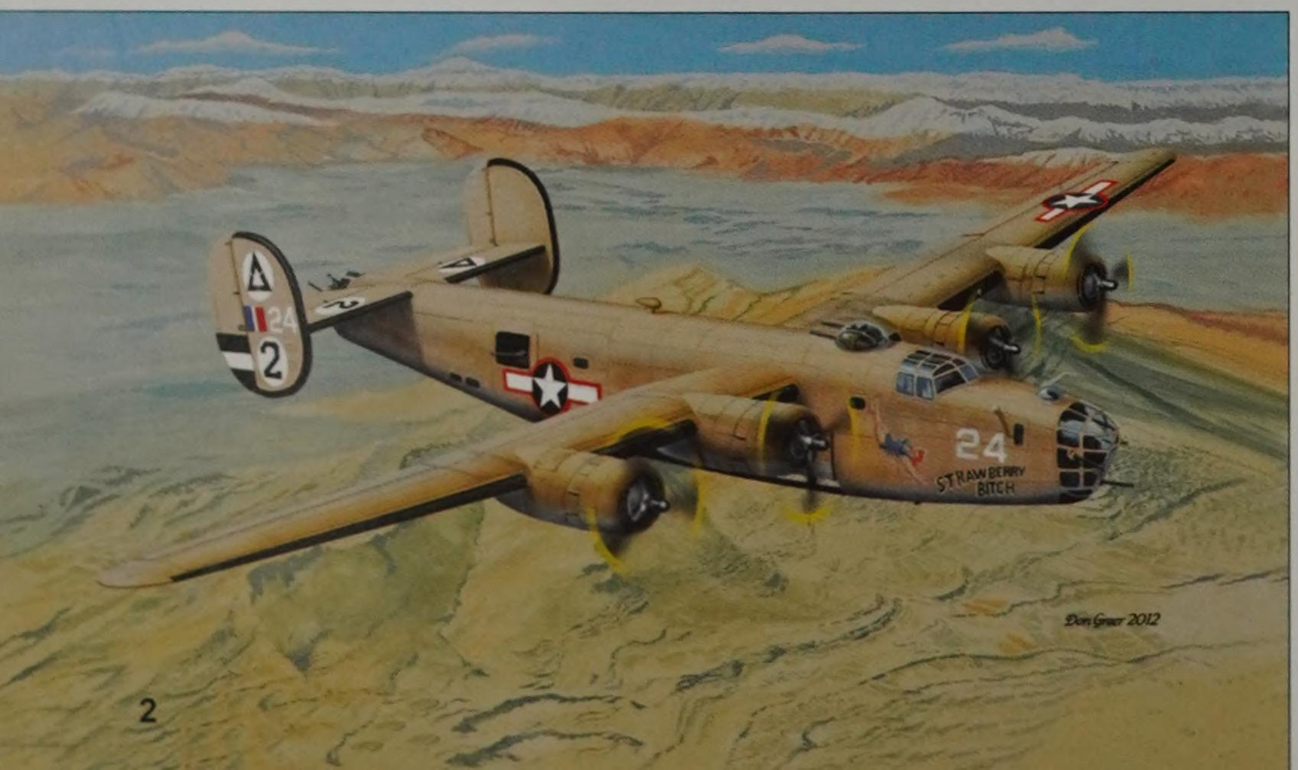
(Front Cover) The first Ford-built B-24J-5-FO serial number 42-50760, *Maggie's Drawers,* flying with the 8th Air Force, 389th Bomb Group's "Sky Scorpions" 566th Bomb Squadron was downed by FlaK and crashed two kilometers north of Bad Kreuznach, Germany, on 15 October 1944. Flight engineer Richard Ellwart and tail gunner Eugene Kalinowsky were killed, and the rest of the crew became POWs. A field-applied armor plate below the copilot's window obscured *Maggie's* on her last mission.

(Back Cover) As the desert pink camouflage belies, this B-24D operated in North Africa with the 512th Bomb Squadron during 1943-1944. Named the *Strawberry Bitch* by her first crew, the aircraft survives today, preserved at the National Museum of the United States Air Force.



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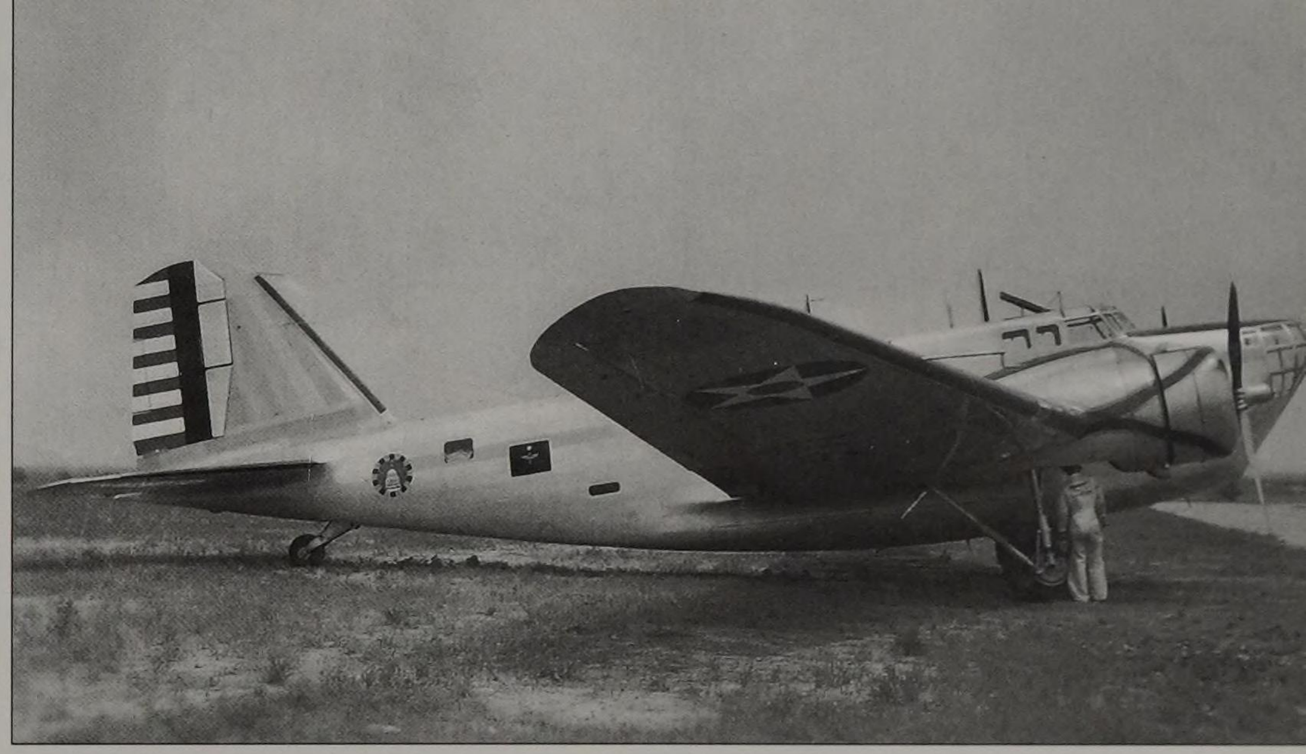
(Title Page) The B-24 Liberator, produced by four different firms, was built in greater quantities than any other WWII bomber, with output totaling 18,482 aircraft in numerous models. These aircraft were operated by the U.S. Army Air Force, and U.S. Navy, on all fronts, and were also supplied to the Commonwealth nations.

Acknowledgments

As with all of my projects, this book would not have been possible without the generous help many friends – some old, some new. Specifically, Tom Kailbourn; Stan Piet; Brett Stolle and the staff of the National Museum of the United States Air Force; the staff of the National Archives; Hans-Heiri Stapfer; the Dyersburg Army Air Base Memorial Association (DAABMA); and the team at the Air Force Historical Research Agency. Special thanks to the professional editorial team at Squadron Signal Publications, without whose careful attention to detail and countless hours of work this book would not have appeared. In particular the help and support of my wife Denise, and our sons Andrew and Brandon, made this work possible.

Introduction

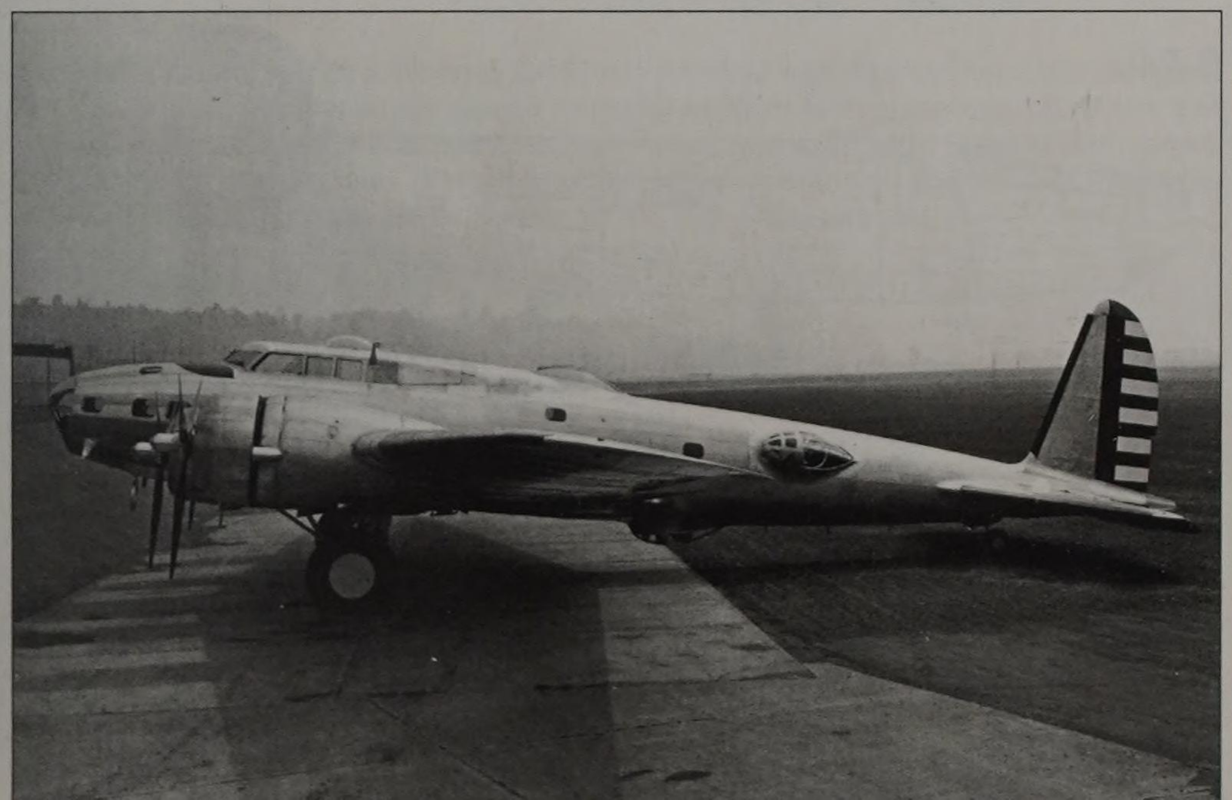
As the signs of war for the United States grew more and more ominous in 1938, the United States government began mobilizing its industrial base, including aircraft manufacture. At that time the Boeing B-17 Flying Fortress, while not the nation's standard long-range bomber, was certainly a rising star in that category. In an effort to expand the manufacturing base, Consolidated Aircraft of San Diego was requested to submit a proposal for producing the B-17 under license, thereby creating a second source for the aircraft. A team of Consolidated executives visited the Boeing facility and after studying the situation, responded not with an offer to build the B-17, but instead with a proposal for their own long range bomber, which promised a higher ceiling, higher speed, and significantly, longer range than that of the Flying Fortress. This proposal, formalized in January 1939 under Specification 212, was known at Consolidated as Model 32. Significant to the design was the incorporation of the Davis high aspect ratio wing. The Army Air Corps issued a contract on 30 March, 1939 for a single prototype, with the stipulation that the aircraft be ready before the end of the same year – a deadline narrowly met when the Model 32, by then designated the XB-24 by the Air Corps, took to the air for its first flight on 29 December 1939.

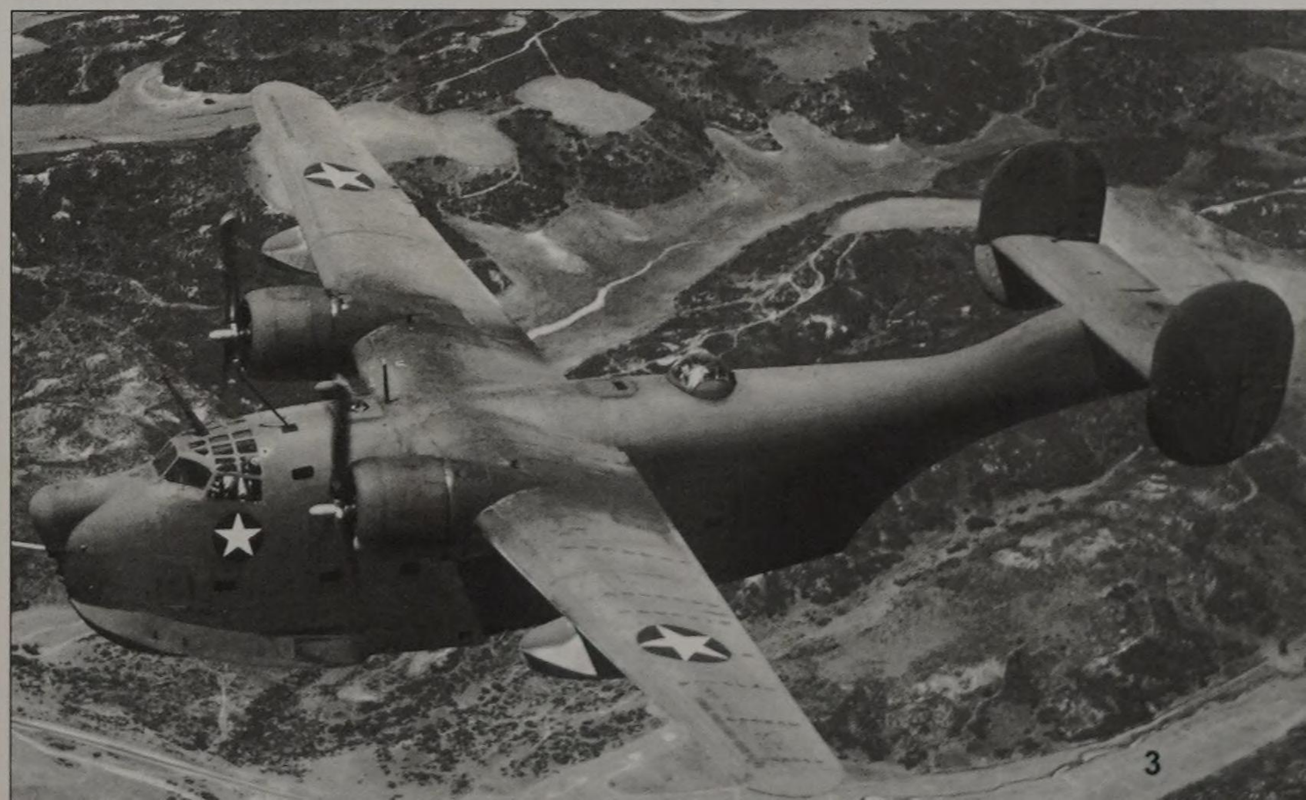


The Douglas DB-1, essentially a modified DC-2 airliner, won the Army Air Corps 1935 bomber competition. Designated the B-18, the aircraft became the United State's front line long-range bomber. An improved model, the B-18A remained in production through 1939. (National Museum of the United States Air Force)

The loss of the experimental Model 299 during the 1935 trials eliminated Boeing from the competition. However, through the perseverance of General Hap Arnold, the type, designated B-17 by the military, had seen limited production. In 1938, Consolidated Aircraft was invited to produce the B-17 under license. Instead, Consolidated claimed they had a design that could outperform the B-17, and in 1939, when this B-17B was photographed, submitted their design for what would become the B-24. (National Museum of the United States Air Force)

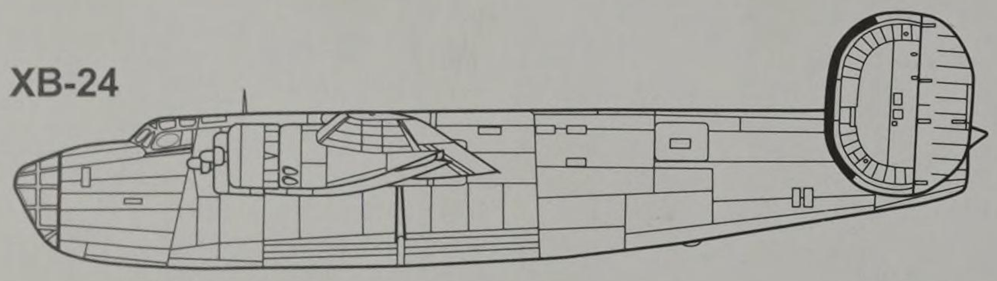
The Consolidated Model 31 flying boat, or U.S. Navy XP4Y-1, was the first operational aircraft to employ the extremely efficient Davis wing, a long, tapering design featuring excellent lift and comparatively low drag. The design team of the Consolidated B-24 would borrow the Davis wing as well as the twin vertical tails from the Model 31. (Jones Collection)



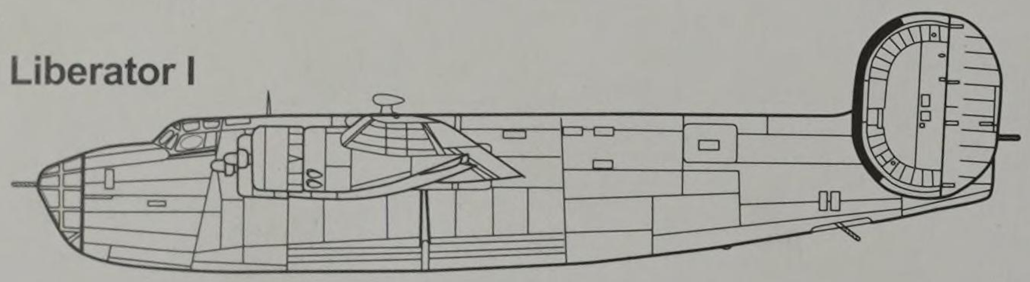


B-24 Development

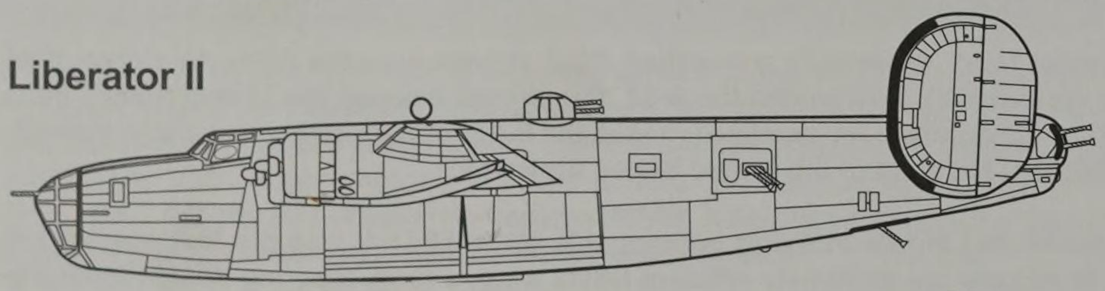
XB-24



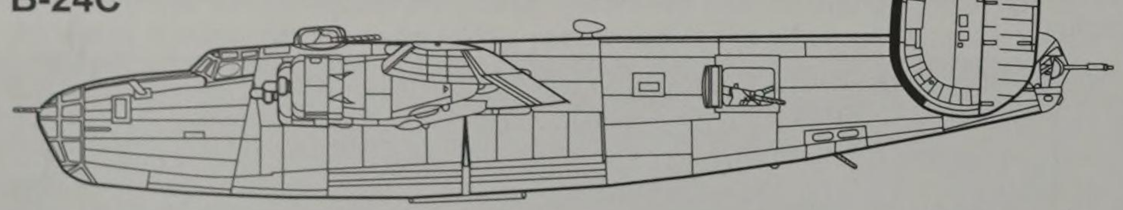
Liberator I



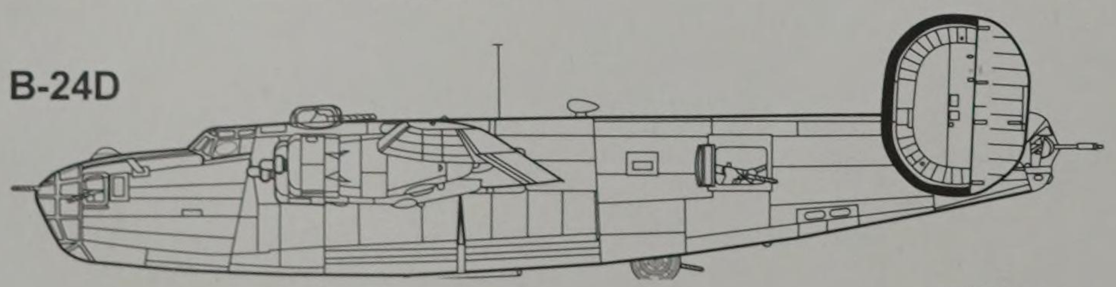
Liberator II



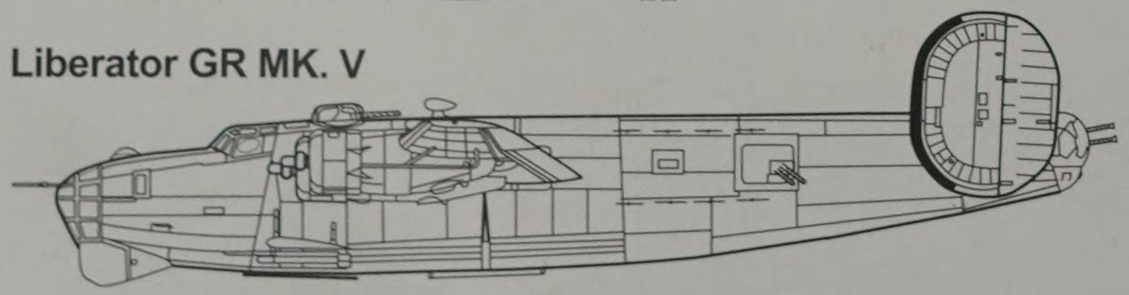
B-24C



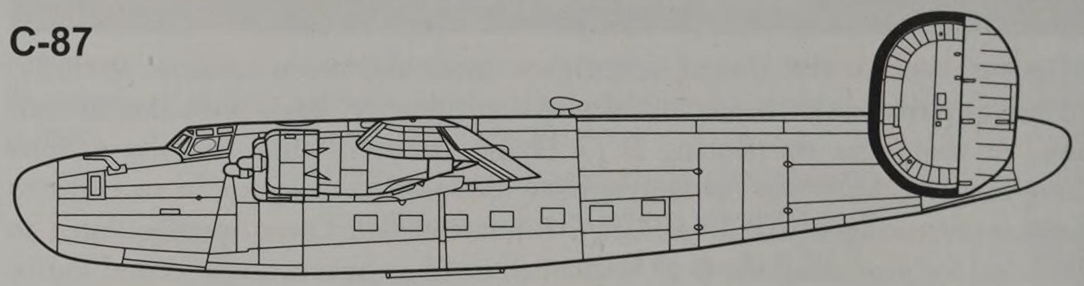
B-24D



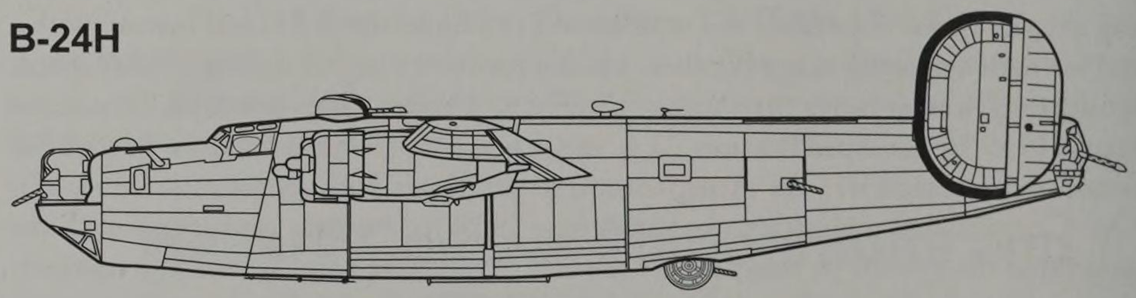
Liberator GR MK. V



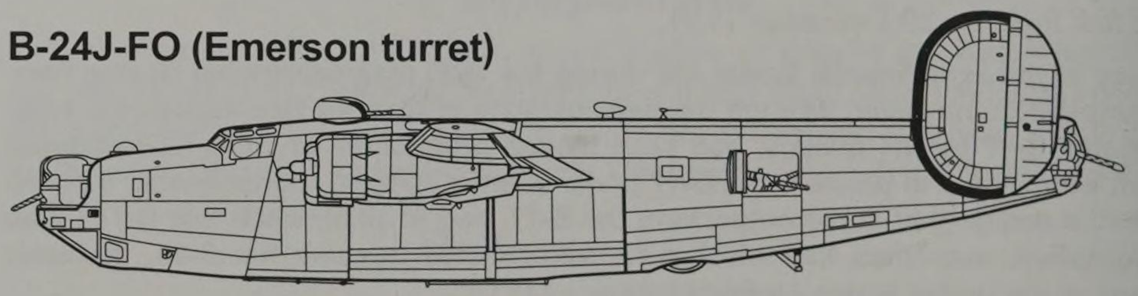
C-87



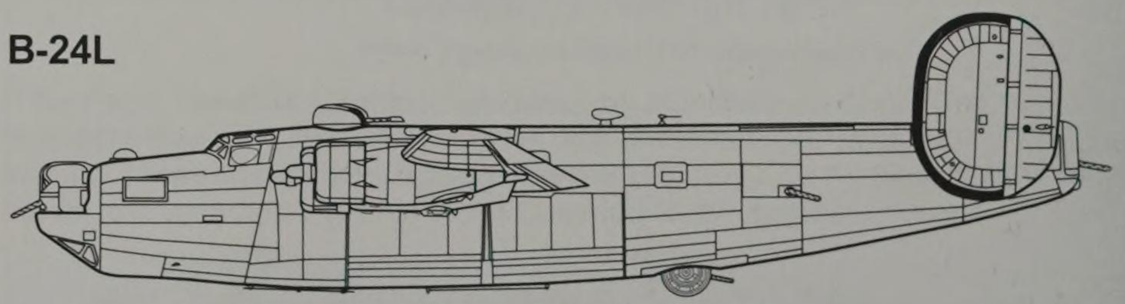
B-24H



B-24J-FO (Emerson turret)



B-24L



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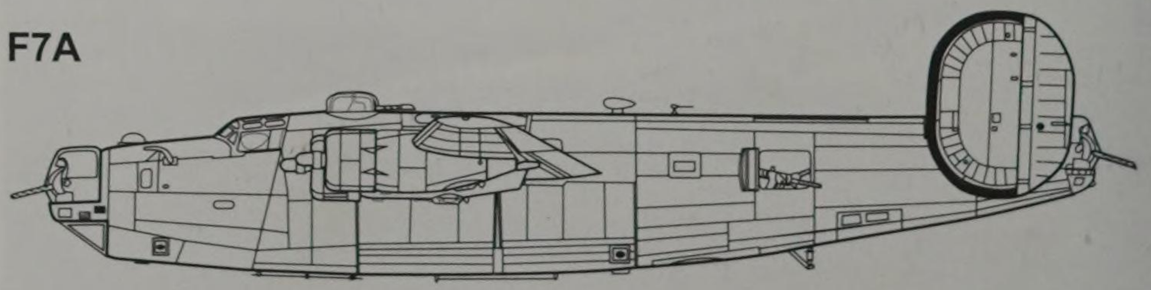
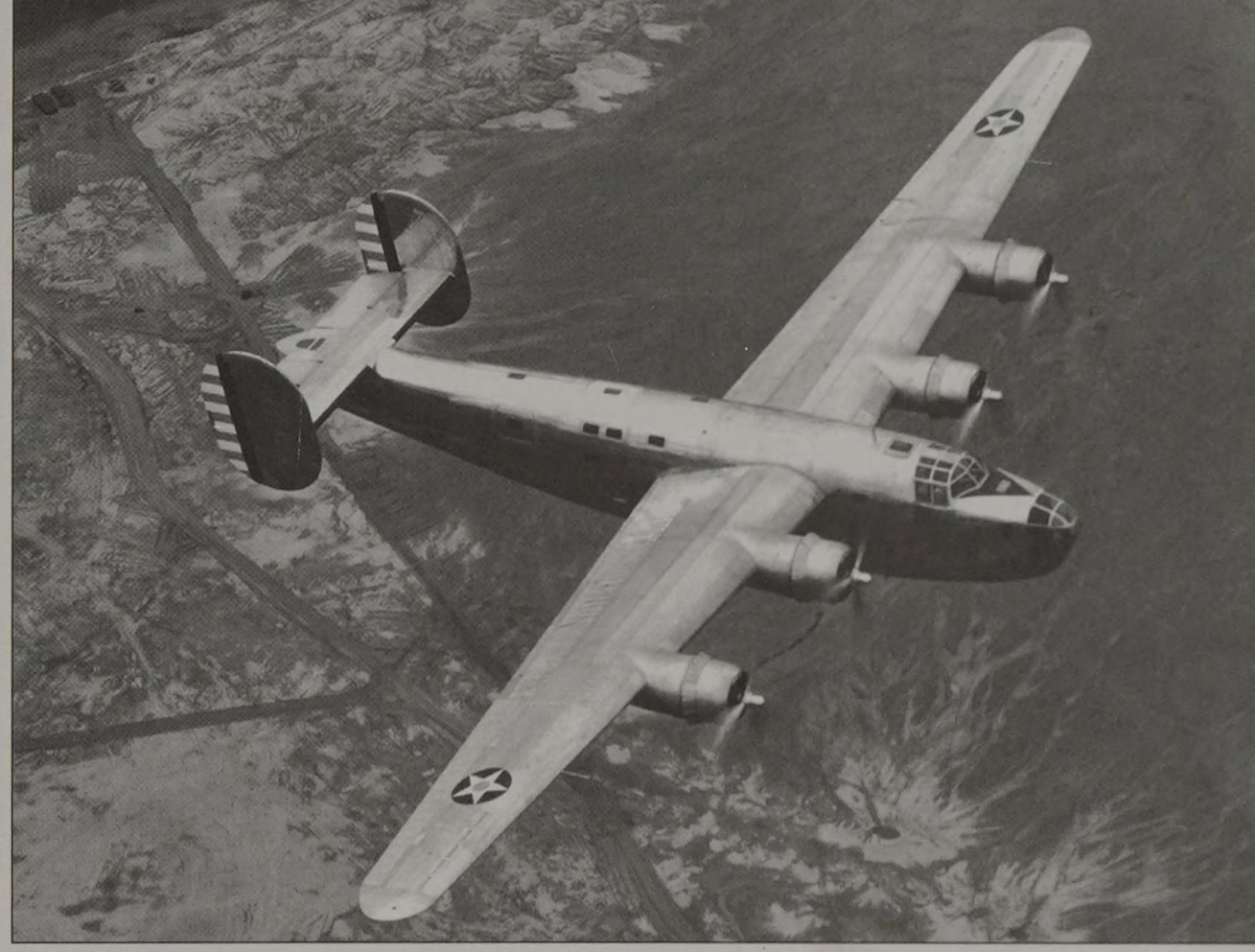


XB-24

The central, and revolutionary, feature of the XB-24 design was the Davis wing. This aerofoil shape was developed by David R. Davis, who derived its cross-section from the shape formed by a drop of water moving through the air. In 1937 David, with his business partner Walter Brookins, called on Consolidated president Reuben Fleet to discuss Davis's design. After some initial hesitation, and with Fleet's insistence, Davis revealed his design to Consolidated's engineers Machlin Laddon and George Schairer. Thereafter, a contract was entered into between Consolidated and Davis, which among other things, paid Davis $2,500 for the use of the design in the prototype, and a royalty of .5 percent of the sales price (less engines and government provided equipment) of each aircraft incorporating the design. Fleet, convinced of Davis's design, gambled much of Consolidated's future on the new wing, and ordered the Model 31 flying boat built with the airfoil. While the Model 31 (XP4Y) itself was not a success, the Davis wing, combined with Consolidated's Fowler flaps, proved to be 20% more efficient than contemporary wing designs. Not surprisingly, the Davis wing and high-lift Fowler flaps wear carried over into Consolidated's next model – the Model 32, which of course was Consolidated's model number for the plane that would be known as the Liberator. Also carried over from the Model 31 was the twin vertical tail. The new long range strategic bomber design would also feature tricycle landing gear, and ultimately the Liberator would be the first production bomber to feature this type landing gear.

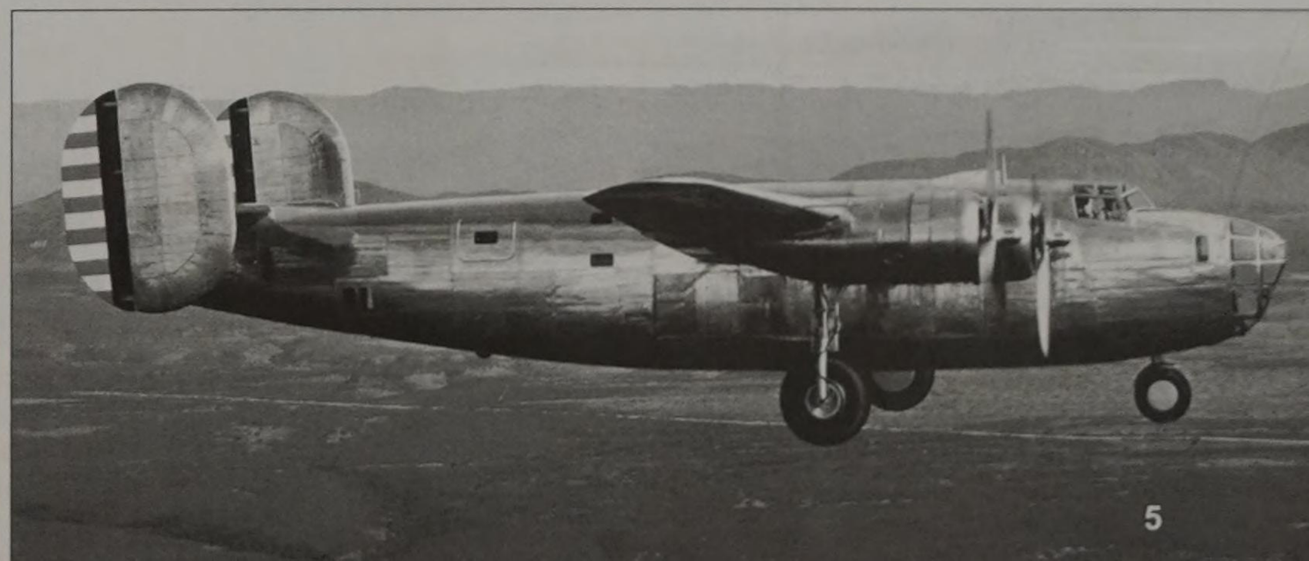
On 30 March 1939 the Army contracted with Consolidated to construct a single XB-24 prototype. That aircraft, USAAC serial number 39-556, first flew on 29 December 1939. But even much like Fleet had gambled on the Davis wing, the Army Air Corps gambled on the XB-24, ordering seven YB-24 service test models even before the XB-24 took to the air.



The pilot aircraft of the Liberator series, XB-24, serial number 39-556, was photographed on 27 February 1940, eleven months after the army issued the contract for the aircraft and two months after its maiden flight. The XB-24 exhibits the long, Davis wings, twin vertical tails, and glazed, framed nose that would distinguish future Liberators. (National Museum of the United States Air Force)

The XB-24 had four Pratt & Whitney R-1830-33 engines with mechanical superchargers. The cowls were circular when viewed frontally, as seen in this photograph. When that engine, with its mechanical supercharger, was replaced with turbo-supercharged R-1830-41s (and later, with -43s), the XB-24 was redesignated the XB-24B. (National Museum of the United States Air Force)

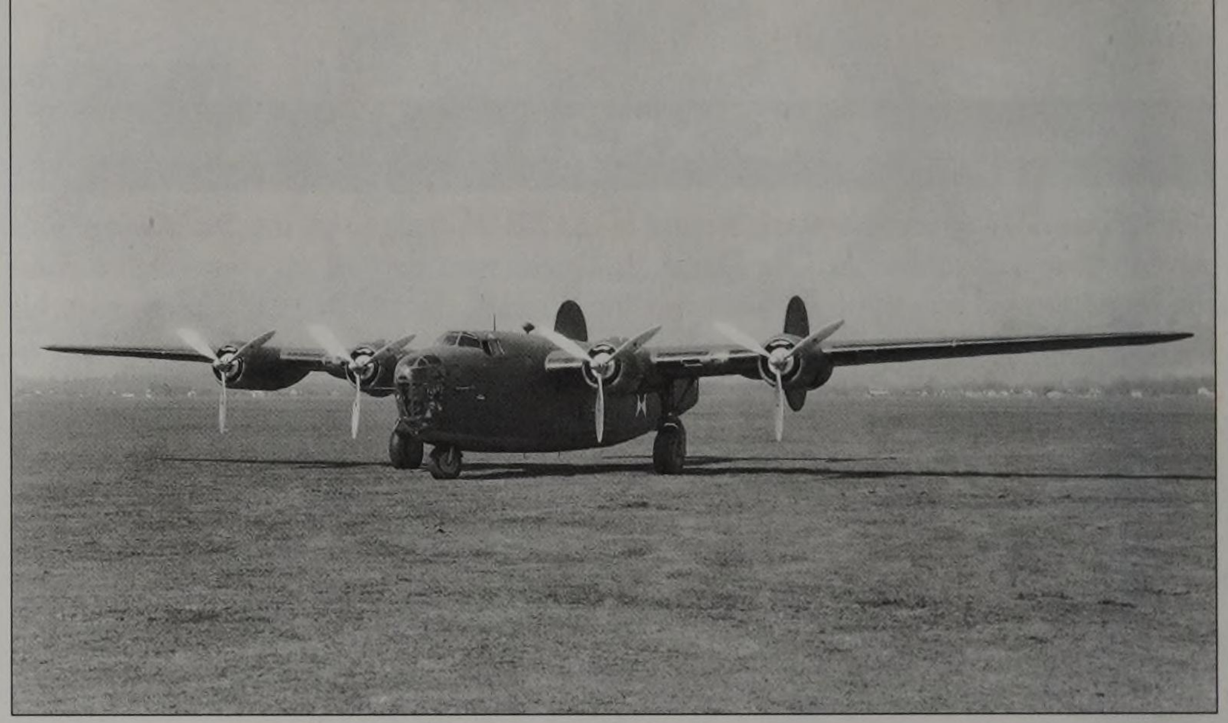
The XB-24 lacked machine gun turrets and mounts. The short nose was a feature that would carry over to the early Liberators, until a longer nose was introduced with the B-24C and the British Liberator Mk. II. In addition to upgraded engines, other changes made to the XB-24 included the installation of self-sealing fuel tanks.



YB-24

The Army Air Corps ordered seven YB-24 service test aircraft even before the first XB-24 had flown. The YB-24 was to differ from the XB-24 by lacking the five slots in the outer end of each wing, a design change which had been tested with the XB-24 (resulting in it being redesignated the XB-24B) that raised the top speed from 273 to 310 mph. The YB-24 however added deicer boots on the leading edges of the wings and tail surfaces, which together with the addition of camouflage paint, resulted in the top speed dropping back to 275 mph. Like the XB-24, the YB-24 had provision for mounting six .30 caliber machine guns in the nose, tail and waist of the aircraft. None of these weapons were mounted in turrets. The bomb capacity of both the XB-24 and YB-24 was 8,000 pounds. Although seven YB-24 aircraft had been contracted for by the Army Air Corps, only one was delivered as such.

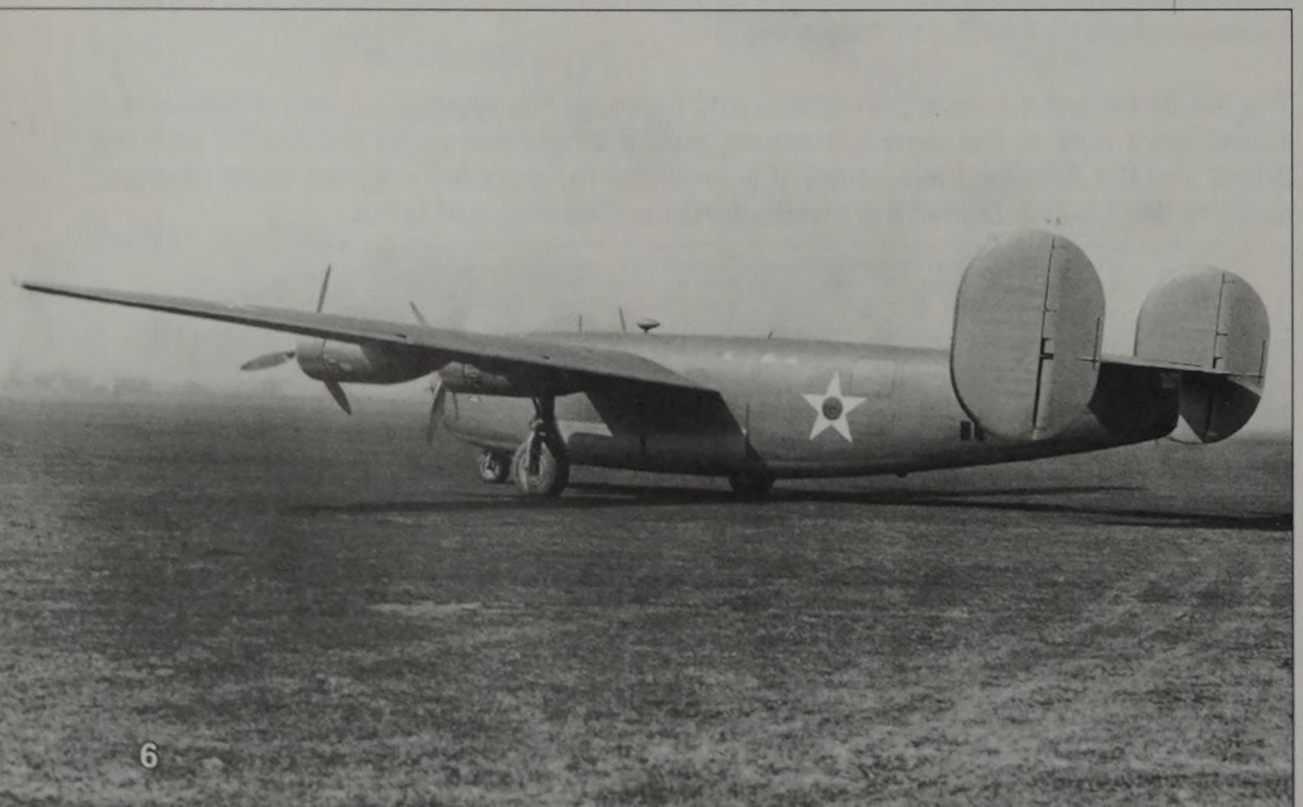
Due to the pressing situation in Europe, the remaining six YB-24s that were constructed were diverted to the British, who designated them LB-30A. The result of this change was that the Army Air Corps was short six aircraft that Consolidated was obligated by contract to deliver to the U.S. government. This shortage was subsequently made up by the delivery of six B-24D aircraft, which were assigned the USAAC serial numbers originally assigned to the YB-24s. The sole USAAC YB-24 was later redesignated RB-24 (R for restricted) and retained at Consolidated for testing.

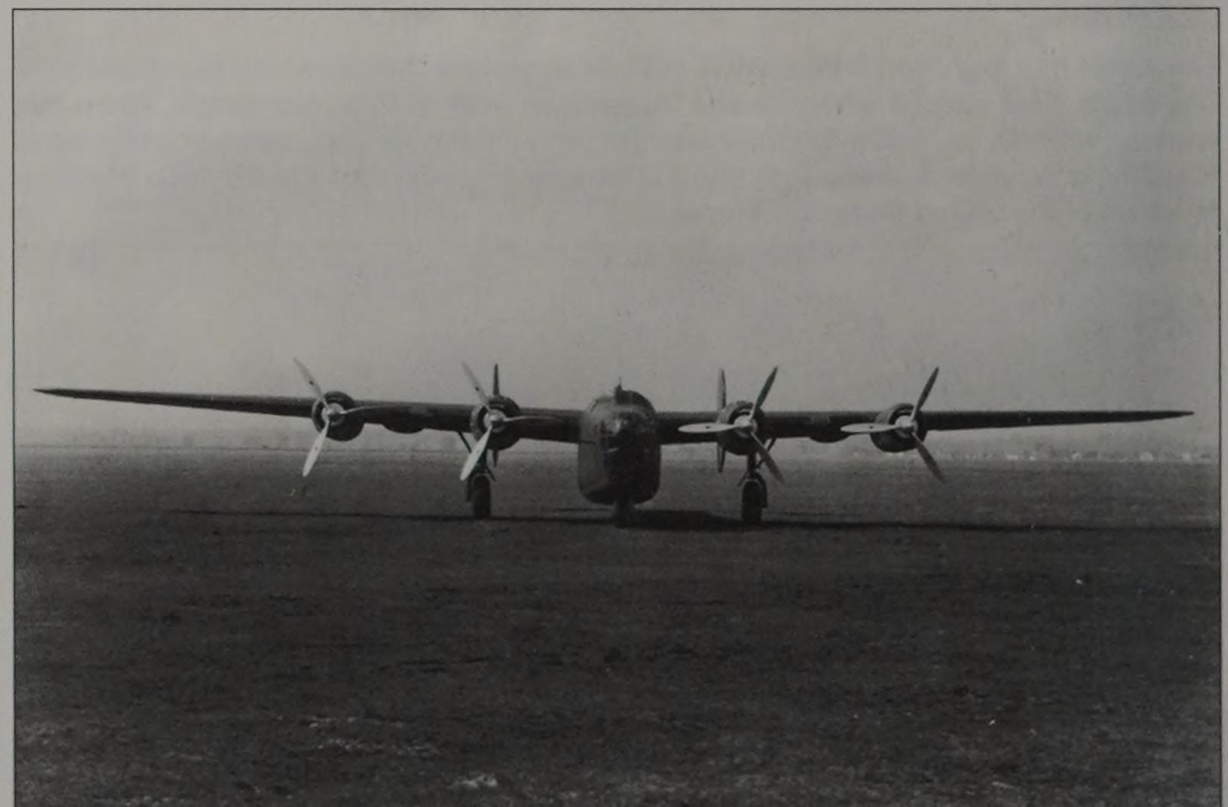


The YB-24 service-test aircraft was similar in appearance to the XB-24, with a few changes. Five slots toward the outer end of each wing were eliminated. Deicer boots were installed on the leading edges of the wings and the empennage. Only one YB-24 went into the U.S. service: the Air Corps accepted it on 22 May 1941. (National Museum of the United States Air Force)

Although the U.S. Army originally ordered seven YB-24s, the service-test version, six of them were diverted to the British, for use as LB-30As, leaving only one YB-24 to be accepted into the U.S. service: serial number 40-702. At the rear of the fuselage was a machine gun position with sliding doors. The design of the vertical tails is visible. (National Museum of the United States Air Force)

A head-on view of the YB-24 demonstrates the extremely short ground clearance of the fuselage. The engines were Pratt & Whitney R-1830-33s. The aircraft had crew armor and self-sealing fuel tanks. After serving as a test platform, the YB-24 was redesignated B-24 and was reassigned to the U.S. Army Air Corps Ferry Training School. (National Museum of the United States Air Force)





LB-30A

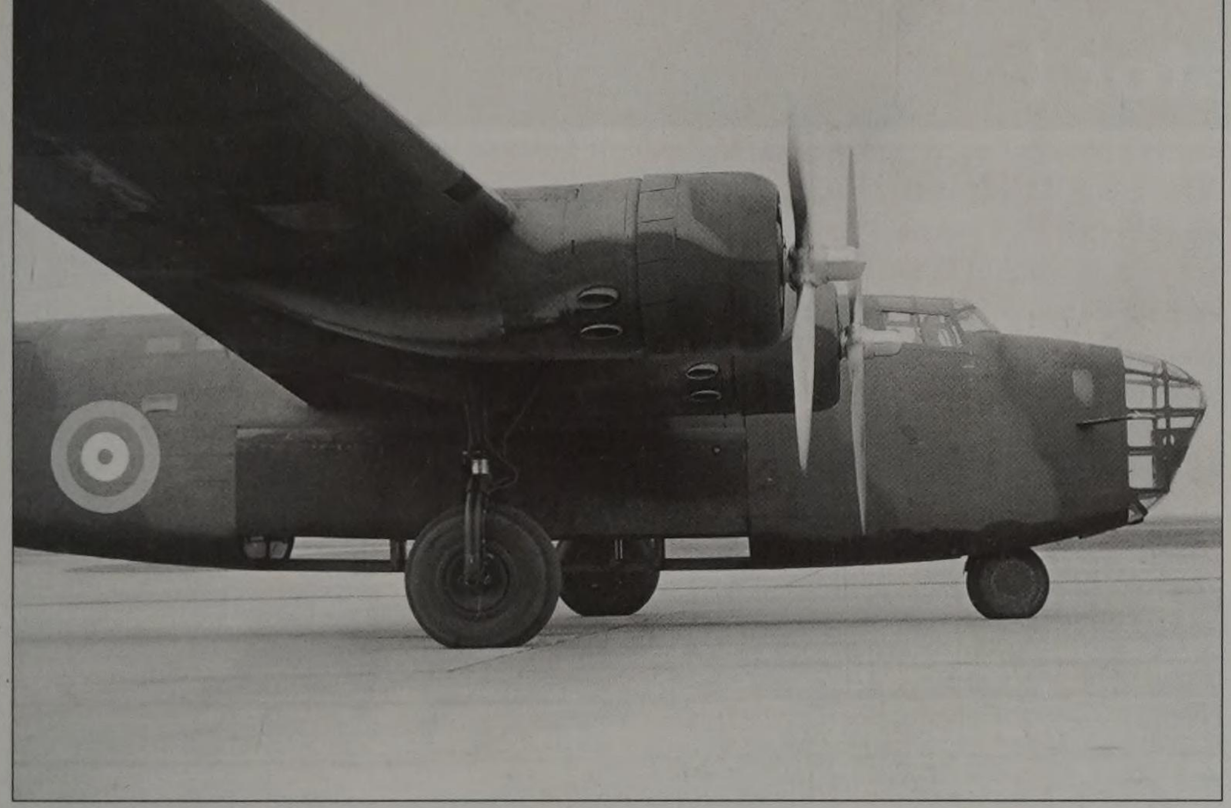
In December 1940 the British accepted six aircraft from Consolidated's YB-24 production run. The British designated these the LB-30A and assigned to them serial numbers AM258 to AM263. These aircraft served with the Transatlantic Return Ferry Service, which shuttled personnel between Canada and the United Kingdom. Toward that end, they received some modifications at Montreal, such as installation of passenger seats, crew and passenger oxygen systems, carburetor-heating equipment, and alcohol deicing for the propeller and engine. Seen here in RAF camouflage is the next-to-last LB-30, serial number AM262. (Stan Piet collection)

As mentioned previously, six of the seven YB-24 aircraft ordered by the US Army Air Corps were instead delivered to the Royal Air Force. However, even that was not a direct route. Even before the XB-24 had flown the first time, the French had ordered 120 of the aircraft to equip the Armée de l'Air (as had the RAF, who ordered 164 examples).

The pressing war demands caused the first six YB-24 aircraft to be reassigned toward the French order, but with the fall of France they were further reassigned (as was the balance of the French order) to Great Britain. These aircraft were dubbed LB (Land Bomber)-30A. The designation was derived from the Consolidated model number in place when in 1938 the French had issued their specifications for a new bomber. Consolidated had responded with a land-based version of the Model 29 flying boat, thus the LB-30. By the time that the French placed the order, Consolidated had introduced the XB-24, thus the A-suffix appeared. The first LB-30A took to the air for its first flight 17 June 1941, with delivery to the RAF at Montreal shortly thereafter. The aircraft arrived in England 14 March, 1941. Upon acceptance and inspection, and with the experience gained by the RAF in the European air war, these aircraft were deemed unsuitable for combat. Chief among the reasons for this was the lack of self-sealing fuel tanks. Thus, the bombers were instead assigned to the Atlantic Return Ferry Service. This service ferried RAF pilots to Canada where they picked up new military aircraft and flew them back to England.

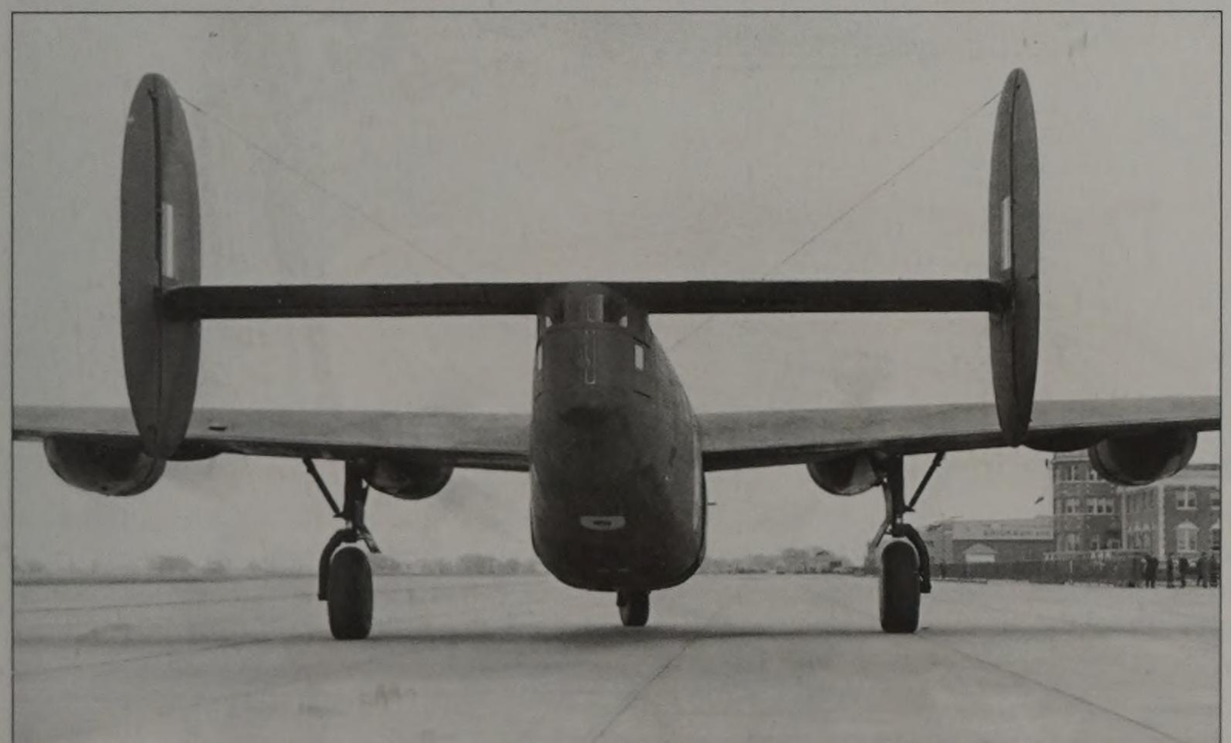
While an LB-30A's engines are warming, a ground crewman scrambles below the open bomb bay. The small, black serial number toward the rear of the fuselage, AM263, identifies this aircraft as the last of the six LB-30As. The lack of self-sealing fuel tanks was a major factor in the RAF's relegating the LB-30A to transport duties.

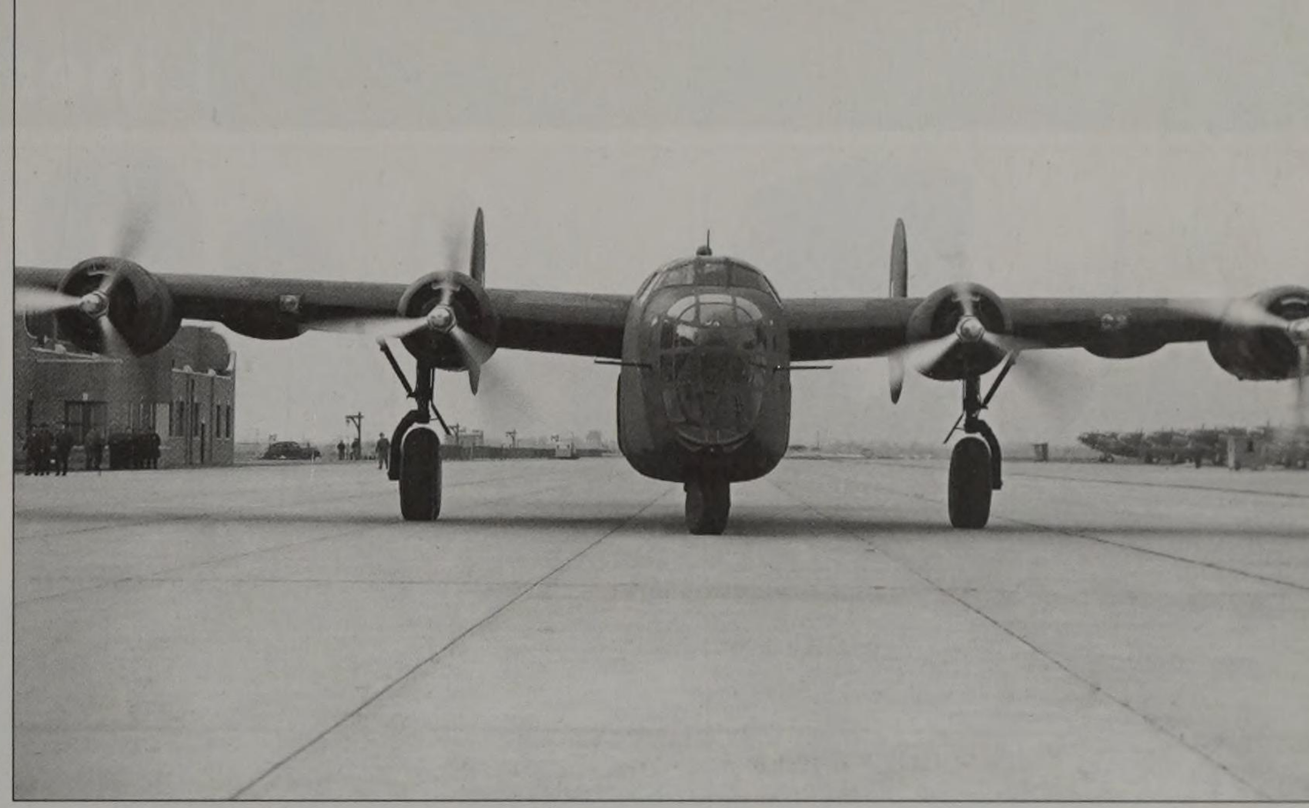
An LB-30A in RAF colors flies outbound over New York Harbor, with the Statue of Liberty directly below it. Whereas a pitot tube had been mounted on each wing of the XB-24, on the LB-30A the pitot tubes were moved to the cheeks of the fuselage, below the small side windows in the bombardier's compartment. (Stan Piet collection)



The exhausts of the LB-30A were beveled at the outer ends and were flush-fitted with the engine nacelle. These aircraft had Pratt & Whitney R-1830-33 engines with mechanical superchargers and thus lacked ability to operate at high altitude that a turbo-supercharged engine would have enabled: another reason the LB-30A was used for transport.

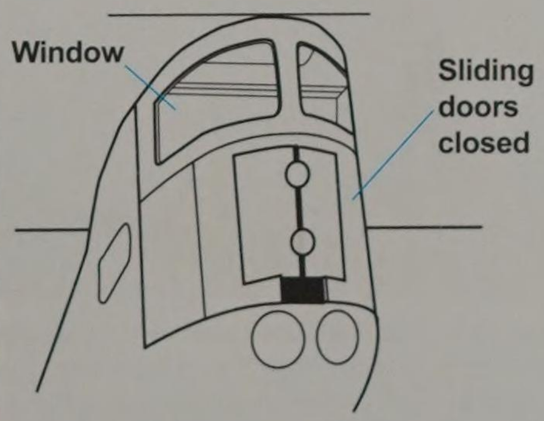
At the rear of the fuselage of the LB-30A was a tail stinger mount, whereby two sliding doors (note their recessed tracks) could be opened to allow a hand-operated machine gun to be aimed rearward. Above the sliding doors were two curved windows. Red-white-blue recognition flashes are painted on each side of each horizontal fin.

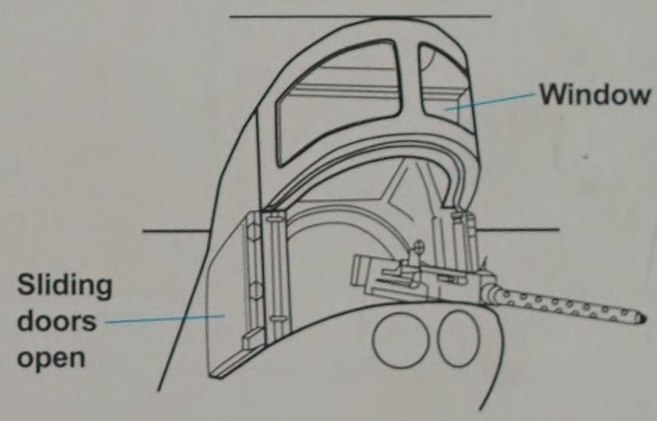




Like all Liberator models, the LB-30A had a tricycle landing gear, with the main landing gear located below the inboard engine nacelles when lowered, and housed in recesses in nacelles and in the wings when retracted. The Liberator in fact was the first production bomber to feature tricycle landing gear. Through production of the different models of Liberator, the method of nose gear door opening varied. On this model, the nose landing gear doors retracted into the landing gear bay when the gear was lowered.

Tail gun position





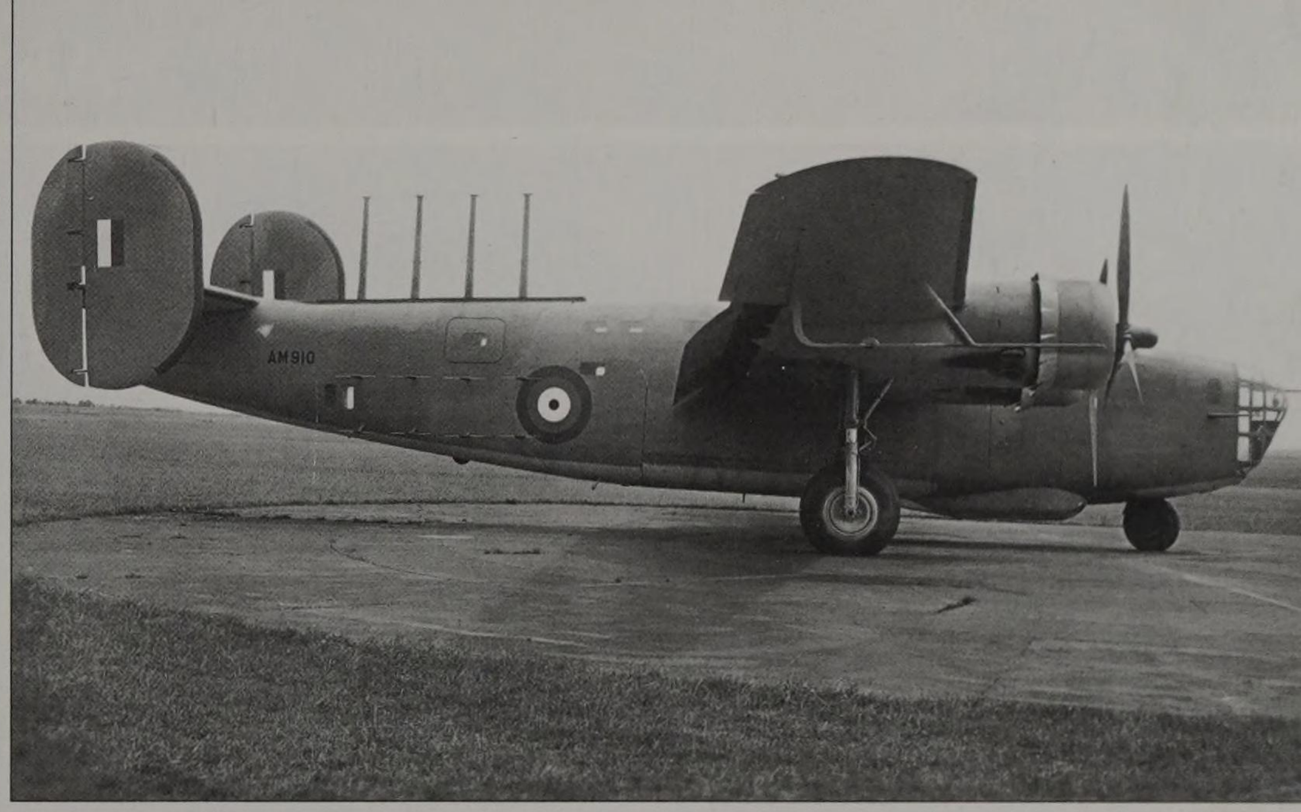
Liberator I

Following its acquisition of the six LB-30As in late 1940, the RAF took delivery of 20 LB-30Bs from March to June 1941. Commonly called the Liberator Mk. I and referred to in Consolidated Aircraft's records as "B-24A Conversion," these aircraft carried serial numbers AM910 to AM929. Most of the Liberator Is served with Coastal Command. Here, AM910 appears during tests at the Aeroplane and Armament Experimental Establishment (A&AEE) at Boscombe Down in Wiltshire, England, in July 1941. The four vertical masts toward the rear of the fuselage and the antennas under the wings and on the nose are part of the air-to-surface-vessel (ASV) radar system employed by Coastal Command Liberator Is. Four 20mm cannon were mounted in a pack aft of the front landing gear bay.

The first 20 aircraft intended to be US Army Air Corps B-24A, serial number 40-2349 through 40-2386, were instead diverted to the RAF following the collapse of France. Because this decision was made prior to the aircrafts' construction, the Liberator Mk. I, also known as the LB-30B, was built to meet British requirements. This included six flexible .30 caliber Browning machine guns, which were dispersed as follows: one in the belly, one in the nose, two in the tail, one in each waist position. Power was provided by four Pratt & Whitney R-1830-33 engines. These aircraft were given RAF serial numbers AM910 through AM929 inclusive. Like the LB-30A, Liberator Mk I aircraft were delivered to the RAF at Montreal, and then flew on to England.

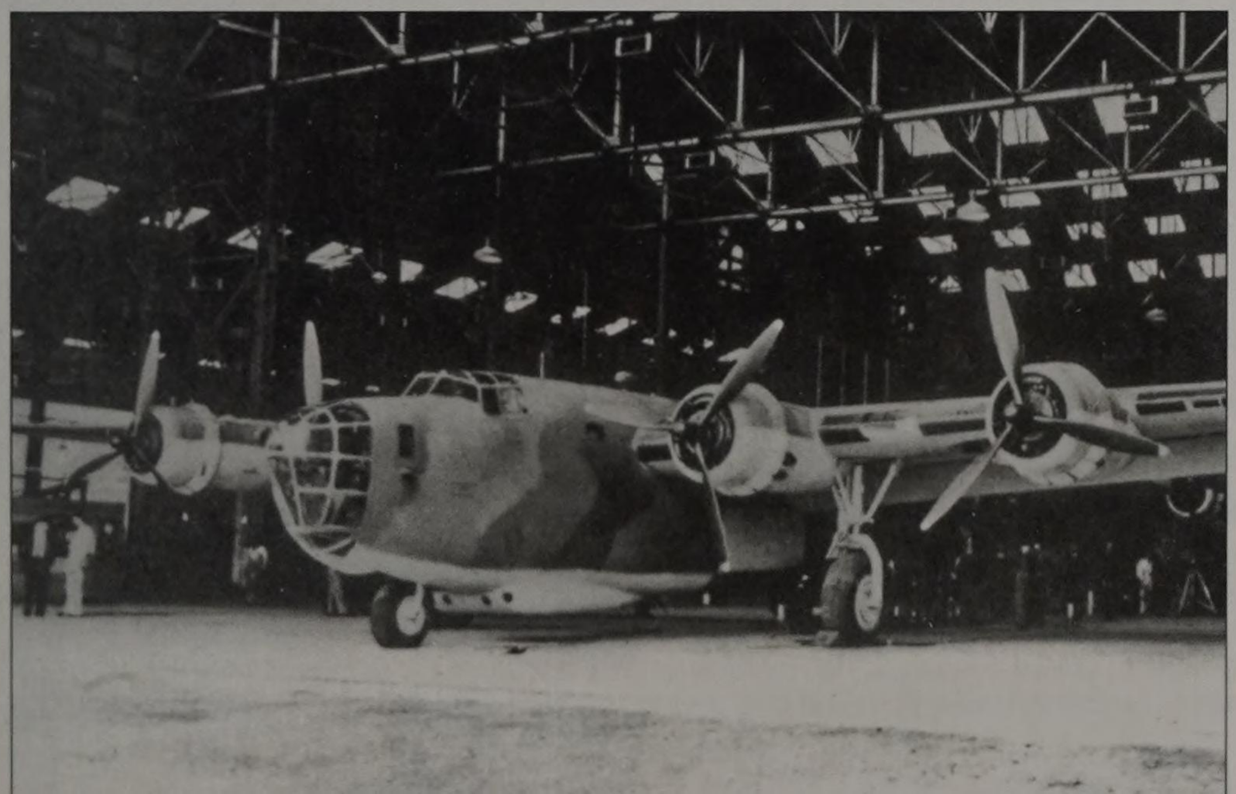
The Liberator Mk. I was well-suited for use by the RAF Coastal Command in an anti-submarine role. For this use they were fitted with radar, which resulted in numerous antenna being visible on the outside of the aircraft. In order to combat surfaced U-boats, the aircraft were sent to Heston Aircraft, Ltd., where beneath the fuselage was mounted a bulbous gun pack containing four forward-firing 20-mm Hispano cannon. Each crewed by seven men, the Liberator Mk. I served with the 120 Squadron, Coastal Command, beginning in June 1941. Based in Nutt's Corner, Belfast, the Liberators with their 2400 mile normal operating range were able to reach the German U-boats in what had previously been nominally safe areas. By the time the Liberator I's were replaced with later models in December, 1943 they had been credited with sinking 8 enemy submarines.

Beyond their anti-submarine usage, three of the Liberator Is – AM915, AM918 and AM920 – were operated by British Overseas Airways Corporation (BOAC) ferrying prior passengers and ferry crews across the Atlantic. AM918 flew non-stop from Hurn to Cairo, but was regrettably shot down on its return trip by Allied fighters in error.

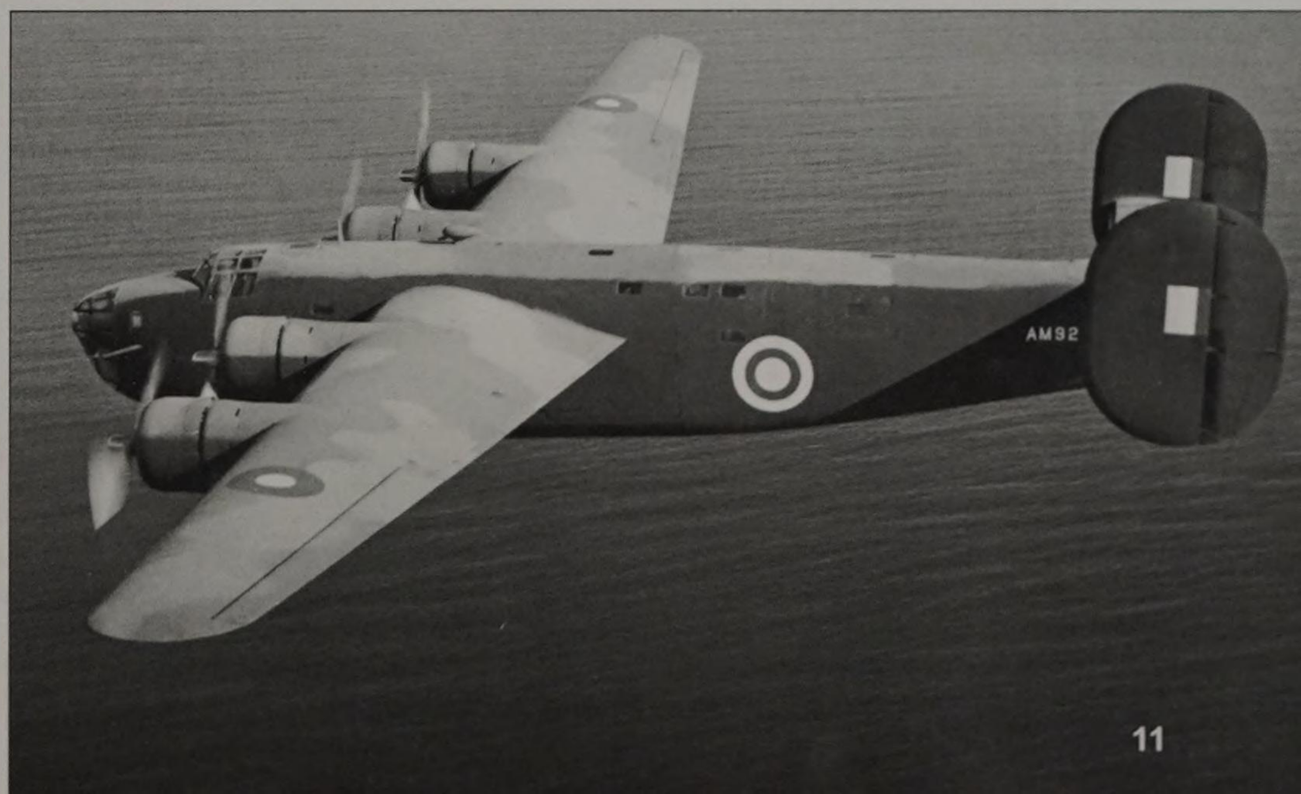


The first Liberator Mk. I, AM910, is poised on a tarmac following its conversion to an antisubmarine aircraft by Scottish Aviation Ltd. at Prestwick, Ayrshire, in July 1941. Two months later, this aircraft would be assigned to No. 120 Squadron, code OH-M, serving until 13 April 1942, when it was damaged and relegated to a spare-parts plane.

The gun pack with four 20mm cannons can be seen beneath the fuselage of this Liberator I. There is a radar antenna under the outer wing panel. These aircraft had round engine nacelles without the side scoops found on most later Liberator variants.



In May 1941, Liberator Mk. I AM922 approaches the Northern Irish coast, bound for its base at Aldergrove, after an eight-hour ferry flight across the Atlantic. During its career, this Liberator Mk. I served with several RAF units, including No. 120 Squadron, the Special Duties Flight, No. 1425 (Communication) Flight, and No. 511 Squadron.



Just after daylight one morning in March 1942, a group of onlookers expectantly looks on as the 11th Consolidated Liberator Mk. I, serial number AM920, warms its engines at Prestwick, Scotland, in preparation for a transatlantic ferry operation. This Liberator Mk. I was transferred to British Overseas Airways Corp. (BOAC) in August 1942.

Like the LB-30A, the Liberator Mk. I also did duty as a VIP transport. Military personnel at Prestwick, Scotland, stand by on 28 July 1941 as Liberator Mk. I AM261 of RAF Ferry Command prepares to depart for Canada with the Duke of Kent on board. This was reportedly the first time a member of the royal family crossed the Atlantic by aircraft.

Supplies are being loaded aboard Consolidated Liberator Mk. I, serial number AL578 and nicknamed *Marco Polo,* of No. 45 (Atlantic Transport) Group, prior to a transatlantic flight on the Return Ferry Service at Dorval, Montreal, Canada, in November 1943. A cargo handler is stuffing a bag into a small hatch on the side of the nose.

Liberator Mk. I AL578 *Marco Polo* served with the RAF until after the end of World War II. By the time it was photographed at Lyneham, Wiltshire, in late September 1945, the aircraft was wearing Transport Command's postwar finish of polished, bare-aluminum surfaces. The serial number was painted on the bottom of each wing.

B-24A

Consolidated Aircraft produced nine examples of the B-24A, with deliveries to the U.S. Army Air Corps occurring in June and July 1941. Serial numbers assigned to the B-24As were 40-2369 to 40-2377. From the exterior, they were virtually identical to the Liberator Mk. I. The majority of these aircraft served as transport planes. In September 1941, two of them transported William Averell Harriman and his entourage on a diplomatic mission to Moscow. Around the same time, two B-24As were outfitted as long-distance reconnaissance planes for a secret mission to photograph Japanese bases in the South Pacific, but before these planes could fulfill that task, one of them (40-2371) was destroyed on the ground in the Pearl Harbor attack, and the other was reassigned to the USAAF Ferrying Command.

Originally ordered by the USAAC, the bulk of the aircraft on this order were diverted for delivery to the RAF as Liberator Mk. I. The remaining aircraft on the order, serial numbers 40-2368 through 40-2377, were delivered to the U.S. Army Air Corps between 16 June and 10 July 1941. After a limited amount of testing, these aircraft were redesignated (R)B-24. The "(R)" indicated that the aircraft were "restricted" – meaning that they were not believed to be combat worthy. The bombers were armed with a pair of .30 caliber machine guns in the tail position, and four .50 caliber machine guns scattered between the nose, belly and both waist positions. Some, if not all, of these aircraft were delivered wearing a RAF-style camouflage scheme of dark earth and green over black, but featured a massive United States flag painted on each side of their nose. The hope was that this marking would positively identify the bombers as belonging to the officially neutral nation.

Because of the Restricted status of the aircraft, the (R)B-24A aircraft were turned over to the Army Ferry Command. There, the B-24A was used primarily as a transport aircraft both by the Army Air Corps, but also by Consolidated Airways. The latter was a subsidiary of Consolidated Aircraft Corporation formed at Lindberg Field, San Diego, on 23 April 1942. The new company's purpose was to function as a contractor for the Air Transport Command of the Army Air Force, ferrying personnel and supplies to far-flung destinations.

This B-24A was photographed during a test flight out of Wright Airfield, Ohio, in 1941. Despite the almost black appearance of its undersides, it was painted Olive Drab on the top and side surfaces and Neutral Gray on the undersides. The same disks seen behind the propellers in some photos of the YB-24 are present on this B-24A.

B-24As assigned to the U.S. Army Air Corps' Ferrying Command received a camouflage scheme identical to that used by the RAF: Dark Earth and Dark Green over Black. Large U.S. flags were painted on the fuselage, to signify the United States' official status of neutrality up to 7 December 1941. This is the next-to-last B-24A, Army Air Corps serial number 40-2376. This aircraft was lost 5 May 1942 when was forced to ditch in the lagoon of Ju Island, East Indies, after running out of fuel. (Stan Piet collection)

Crewmen are gathered around the third B-24A, serial number 40-2371. At this point in the Liberator's development, the aircraft's nomenclature and serial number were stenciled immediately aft of the clear nose. Note the position of the sole machine gun socket on the nose and the rounded shape of the edge of the disk behind the propeller. (National Museum of the United States Air Force)

Liberator II

In 1941 the RAF ordered 165 Liberators directly from Consolidated (as opposed to being taken over from former USAAC orders), although ultimately only 140 were built. These aircraft were given the designation Liberator Mark II by the RAF. The Liberator Mark II differed noticeably from previous models in having a three foot extension of the nose forward of the cockpit. The Liberator Mk. II was also notable as having the first power turret installations on the type. These were two Boulton-Paul turrets, each armed with four Browning .303 machine guns. One turret, an E. Mk. II, was located in the tail, and the other, an A. Mk. IV, was mounted atop the fuselage just to the rear of the wing. Only one aircraft left the San Diego plant with its turrets in place; in all other instances the turrets were installed in England. In addition to the turret-mounted weapons, additional .303 machine guns were mounted in the nose and belly, and a pair fitted to each waist window. Further improving the combat readiness of the aircraft was the installation of self-sealing fuel tanks. Despite this improvements, the Liberator Mk. II had an inauspicious debut when the very first of the type, AL503, crashed into San Diego Bay, killing everyone on board, including William Wheatly, Consolidated's chief test pilot.

In British hands a few of the Liberator IIs were supplied to Coastal Command, while others were assigned to 159 Squadron (Middle East Detachment) and 160 Squadron, and were first based in the Suez Canal Zone. As Rommel's forces began to draw near, the Liberators were withdrawn to bases in Palestine. From there they were used to pound Tobruk and Benghazi. The latter was particularly notable in the history of the Liberator as three raids on the harbor made 16-22 September 1942 resulted in significant damage to both cargo vessels and the harbor facilities themselves. Ultimately, 160 Squadron was merged with associated elements of 159 and 147 Squadrons to create 178 Squadron. This unit, based first in Egypt, then Libya, and ultimately Italy, flew the Liberator II into 1943.

Following the attack on Pearl Harbor, the US commandeered a portion of the Liberator II order. These aircraft were designated within the USAAF LB-30, which should not be confused with the ex-French LB-30A and LB-30B Liberator Is operated by the RAF.

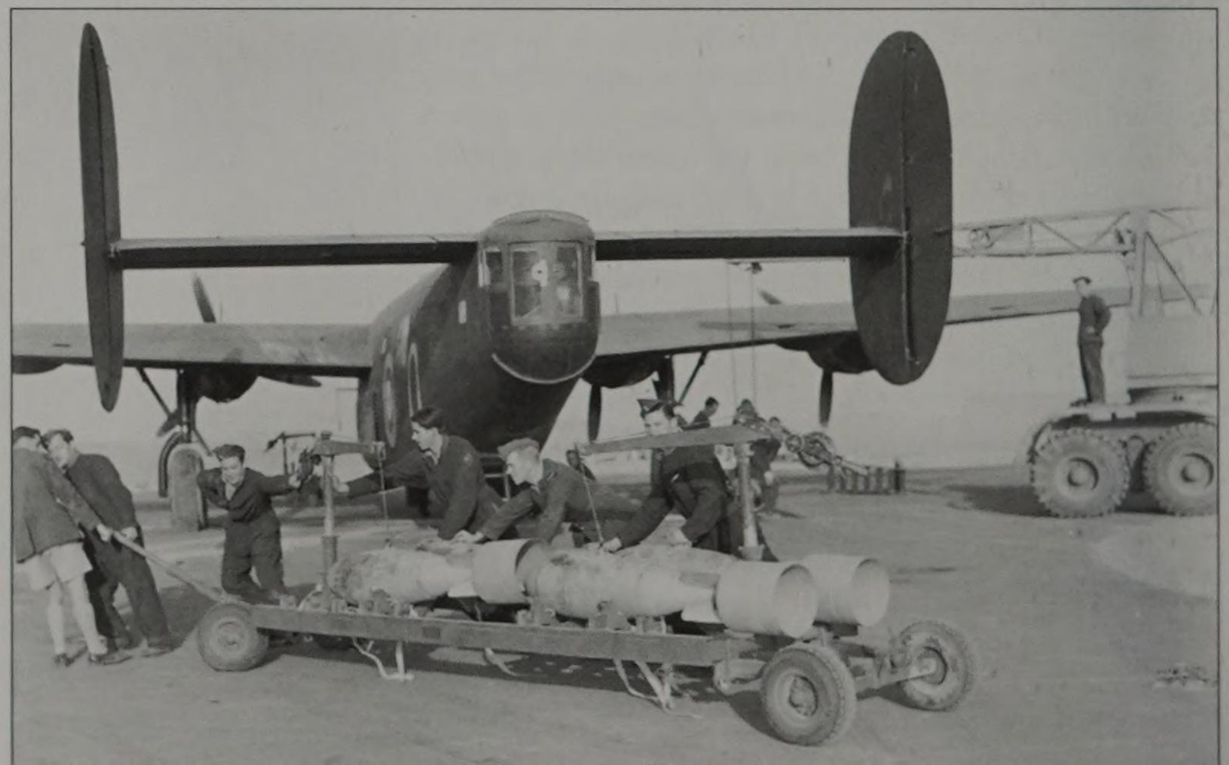
The Liberator Mk. II, of which 139 examples were accepted, was built to RAF specifications and featured a nose section that was almost 3 feet longer than that of the Liberator Mk. I or B-24A. It was the first Liberator to acquire power turrets, with an A. Mk. IV top turret and an E. Mk. II tail turret. Each turret mounted four Browning .303-caliber machine guns. Here, AL579, of No. 159 Squadron, RAF, is being armed with 500-pound bombs at Fâyid, Egypt, in June 1942. Initially intended for deployment to the Far East, by May 1942 this squadron was diverted to the Mediterranean, where, reinforced by No. 160 Squadron, RAF, it flew combat missions until September 1942. Subsequently, No. 159 Squadron was redesignated No. 160 Squadron and was redeployed to India.

Mechanics are performing maintenance on the Pratt & Whitney R-1830-33 Twin Wasp radial engines of a Consolidated Liberator Mk. II of No. 159 Squadron, RAF, at Salbani, India, around July 1943. Curtiss Electric propellers were used on the Liberator II instead of the Hamilton Standard props used on earlier versions of the Liberator.

Armorers manhandle a trolley bearing 500-pound general-purpose bombs to an awaiting Consolidated Liberator Mk. II of No. 159 Squadron, RAF, at Fayid, Egypt, in June 1942. From the wings down, the aircraft was painted in Black, to mask it during night missions. Protruding from the cheeks of the aircraft are two masts with pitot tubes.

The crew of Liberator Mark II serial number AL574 of No. 108 Squadron, RAF, poses in front of their aircraft at Fayid, Egypt, in February 1942. The bomber was resting on a circular hardstand, called in RAF parlance a dispersal frying pan (or dispersal pan). The bomber's letter-code, O, is visible on the waist of the fuselage.

In a view of armorers pushing a trolley of 500-pound general-purpose bombs toward Liberator Mk. II serial number AL574 at Fayid, the tail machine gun position is in view. It appears to be the style with the sliding doors and hand-held machine guns instead of the Boulton-Paul E. Mk. II tail turret that was typically installed on the Liberator Mk. II.

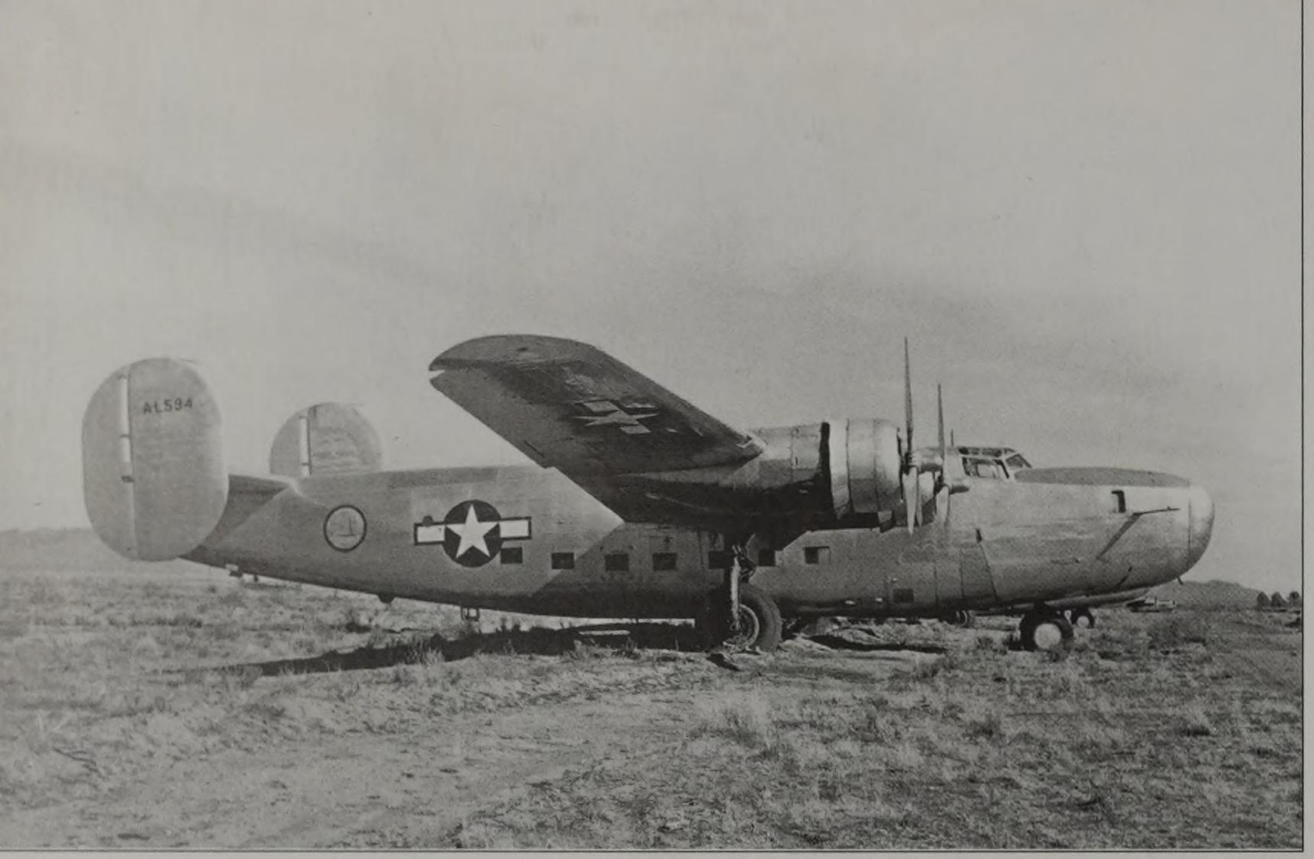


Some of the Liberators Mk. II that the British received were transports that carried the USAAF designation LB-30. These planes were disarmed and featured an extended, all-metal nose of a design similar to that which later would become standardized on the Consolidated C-87.

A crew refuels a Liberator Mk. II of No. 159 Squadron, RAF, at Salbani, India, prior to a raid on the docks at Rangoon, Burma, in early 1943. The squadron had been transferred from Egypt to India following Montgomery's October 1942 victory at al-'Alamayn (El Alamein), making the flight in three stages, with stops at Baghdad and Karachi.

Prime Minister Winston Churchill used this Liberator Mk. II, named *Commando,* serial number AL504, as his personal transport. The guns were removed, the fuselage extended, and plush seats, berths, and a kitchen were installed. In 1944 the empennage was modified with a single vertical fin. "Commando" was lost over the Atlantic in 1945.

The main cabin interior of *Commando* was photographed in May 1944 following a complete overhaul and extensive modification by Consolidated Aircraft's San Diego plant. The fuselage was lengthened by seven feet, a steward's galley was installed, and the interior was fitted with seats and bunks (shown stowed) for 20 passengers.

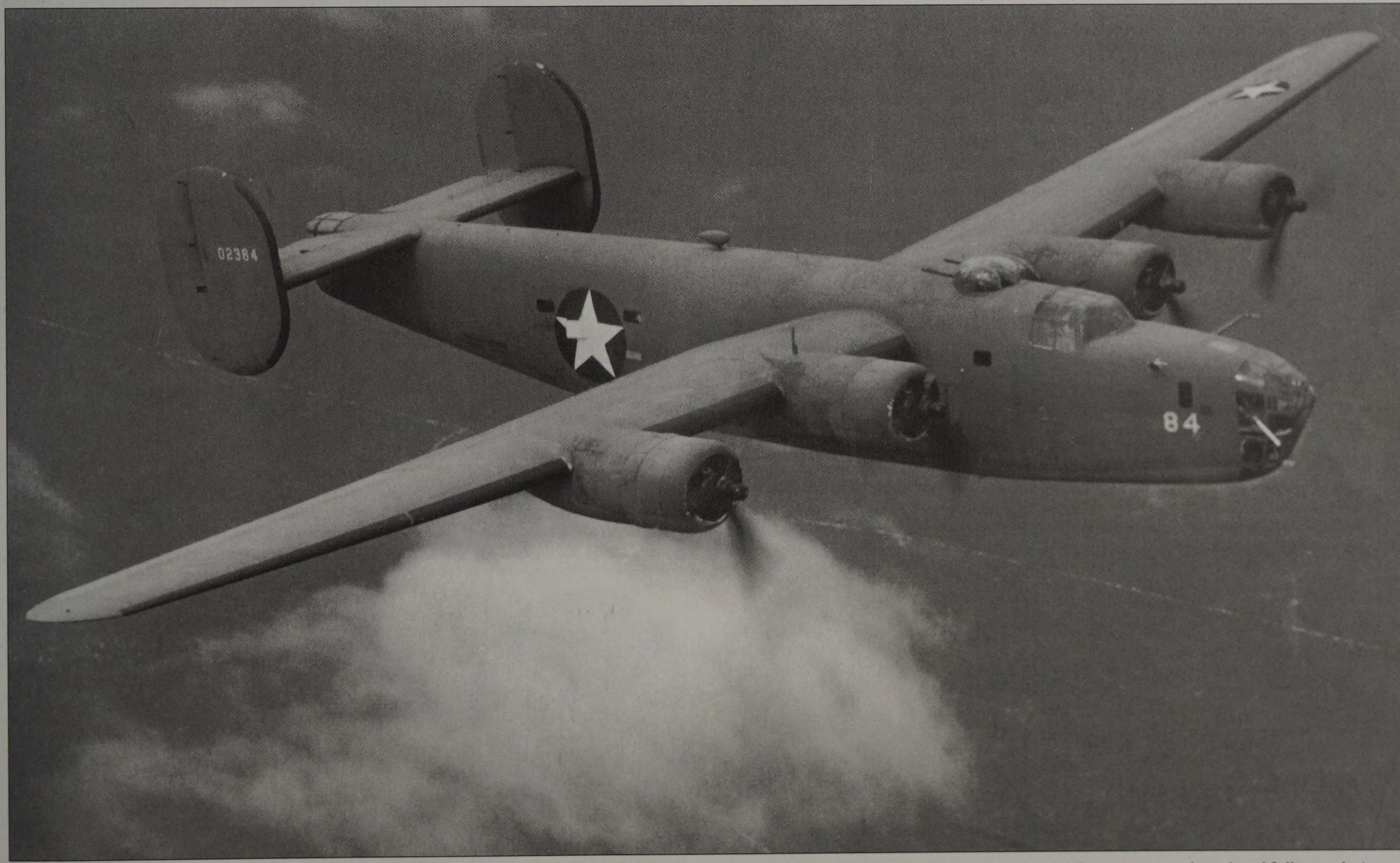


An LB-30 serving with the USAAF was AL594, shown here in postwar storage. The round insignia on the waist is that of the Air Transport Command, as the USAAF Ferrying Command had been renamed in mid-1942. Rectangular windows for passengers are arrayed on the fuselage, and an aluminum nose has replaced the clear one. (National Museum of the United States Air Force)

Part of the British order for Liberator Mk. IIs was diverted to the U.S. Army Air Forces, which designated them the LB-30. One of them was *Jungle Queen,* serial number AL640, assigned to the 6th Bomb Group, 397th Bomb Squadron, in the Canal Zone in 1942 and 1943. It was later converted to a C-87, a standardized transport based on the B-24, and was salvaged in November 1945.

This LB-30A (AL598) was one of several aircraft built for the British and commandeered by the USAAF in December 1941. The color scheme is the standard British night scheme of dark green and dark earth over black under surfaces.

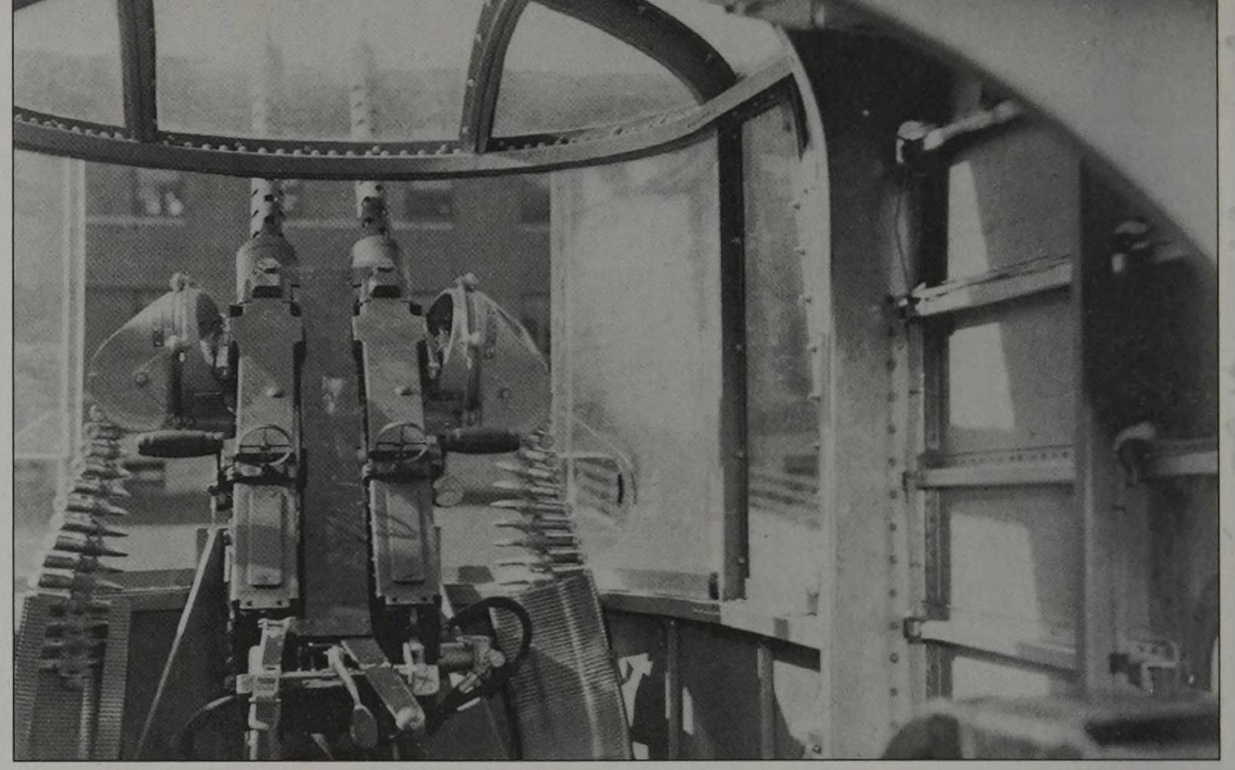
B-24C



The B-24C, which totaled only nine aircraft, was considered the "production breakdown" version of the Liberator: the final step before the first mass-produced and fully combat-ready model, the B-24D. Installed in the wings of these aircraft were self-sealing fuel tanks. Pratt & Whitney R-1830-41 turbo-supercharged engines were employed. To channel cooling air to the oil coolers, turbo-superchargers, and intercoolers, the engine cowls were redesigned with intakes on the sides, resulting in a somewhat oblong shape to the cowls when viewed from the front. Also, a Martin electrically powered turret was mounted aft of the cockpit, and a Consolidated turret was mounted in the tail. The B-24Cs were delivered to the army in late 1941 and bore serial numbers 40-2378 to 40-2386. Shown here is B-24C serial number 40-2384. (National Museum of the United States Air Force)

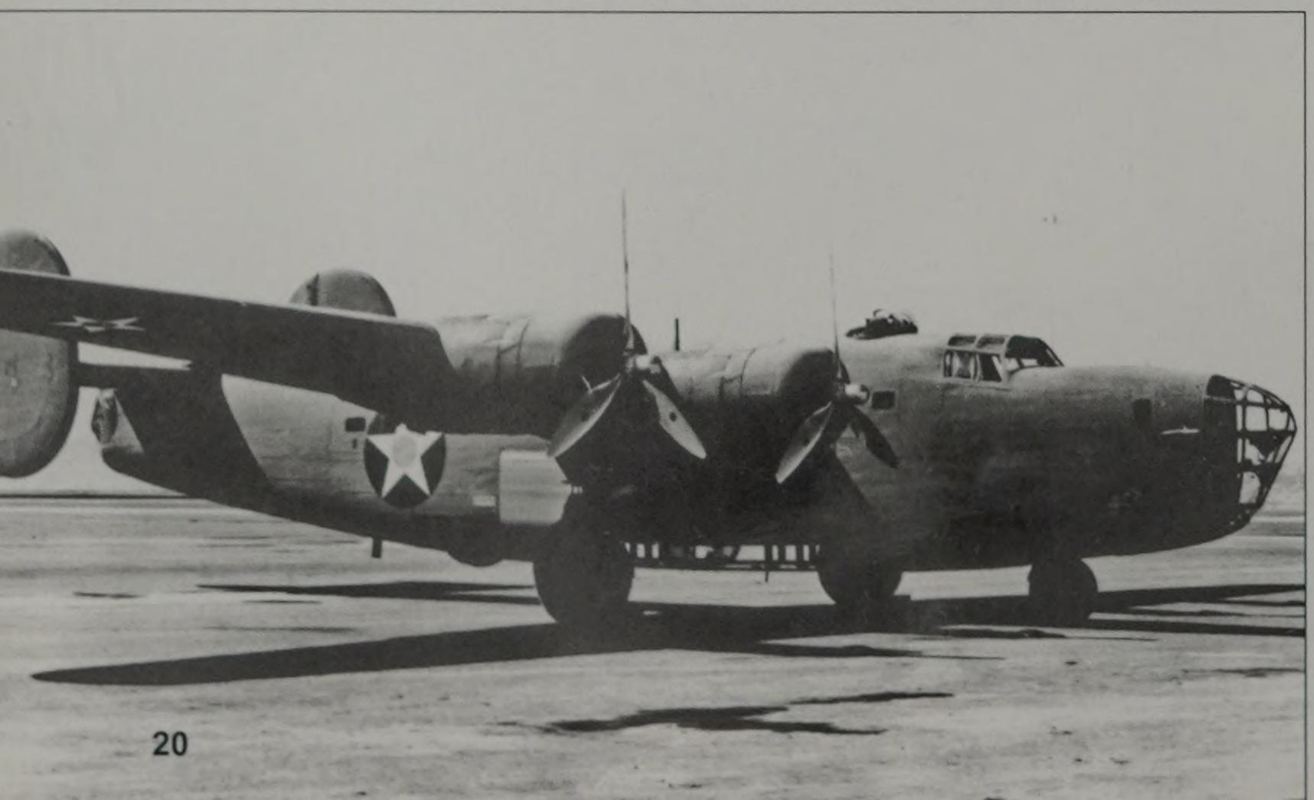
The B-24A was followed immediately by the XB-24B, which consisted of the original XB-24, albeit now fitted with turbosupercharged R-1830-41 engines. At the same time, the aircraft was issued a new USAAC serial number of 39-680. Pleased with the increased performance afforded by the turbosupercharger, particularly at altitudes above 20,000 feet, the next generation of Liberator, the B-24C, was fitted with the improved turbosupercharged Pratt & Whitney R-1830-43 engines turning Hamilton Standard propellers. The new engines necessitated revised cowlings, with the resultant design become something of a signature for future generations of Liberator. The B-24C was intended to iron out all the bumps in both design and manufacture of a combat-capable Liberator so that true mass production could begin. The B-24C utilized the extended nose section that had been pioneered on the Liberator II, resulting in the forward portion of the fuselage of the B-24C being three feet longer than the comparable space on the B-24A. Armament was also beefed up as compared to the B-24A, and the B-24C sported a Martin 250CE-3 turret just behind the cockpit on top of the fuselage. An interrupter circuit was provided, to prevent the top turret gunner from accidentally shooting into the tail surfaces of his aircraft. The aircraft was originally built with hand-operated twin tail machine guns, but during testing at Eglin Field a power tail turret was installed on one or more examples.

Only nine B-24C aircraft were built before production switched to the B-24D, the first truly mass-produced, combat capable Liberator. The B-24Cs were utilized strictly for evaluation and training purposes, and ultimately were redesignated RB-24C reflecting their non-combat ready status.

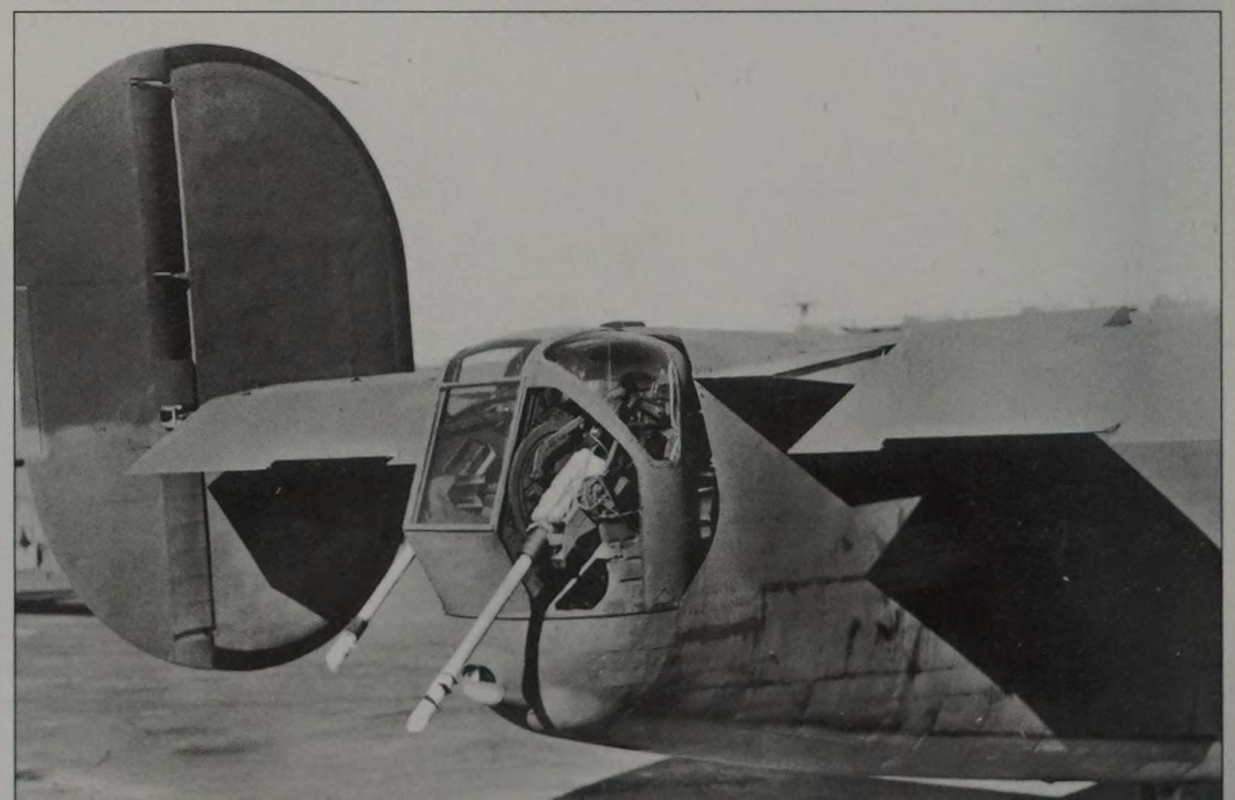


Although the Consolidated A-6 powered tail turret eventually was installed in B-24Cs, the bomber originally had a hand-operated twin-.50-caliber machine gun mount protruding through an opening in a Plexiglas enclosure. Ring-and-post sights, manual charging handles, and a grip on the mount between the guns' receivers are visible. (National Museum of the United States Air Force)

A B-24C sits on a hardstand with its bomb-bay doors open. Faintly visible at the rear of the fuselage is a Consolidated A-6 turret. In addition to the top and tail turrets, there were provisions for mounting hand-operated .50-caliber machine guns in the clear nose, in the waist windows, and in a tunnel position on the bottom rear of the fuselage.



The Consolidated A-6 tail turret is viewed close-up on a B-24C. In this model of turret as well as its successor, the A-6A, the .50-caliber machine guns were staggered, with the one on the starboard side of the aircraft mounted six inches aft of the port one. These guns' barrels and receivers are wrapped with a protective covering until ready for use.



B-24D

The B-24D was the first model of fully combat-ready Liberator to serve in the U.S. Army Air Forces. Consolidated Aircraft manufactured the aircraft at its San Diego, California, plant, and, because of the large quantities of B-24Ds contracted for, they were also assembled at Consolidated's Fort Worth plant and Douglas Aircraft's Tulsa, Oklahoma, factory. First deliveries of the aircraft to the Army Air Forces occurred in early 1942, and a total of 2,738 of this model were delivered. The B-24D was the first model of Liberator to use production-block and factory suffixes in the model designation: for example, the B-24D-7-CO represented block 7 of Consolidated at San Diego. (Stan Piet collection)

The B-24D was the first model to see true mass production, with 2,738 examples being produced. This production was divided among three assembly plants, as what was known as the Liberator Production Pool came on line. Consolidated's San Diego plant built 2,425 B-24Ds beginning in the first months of 1942. In May of the same year assembly of B-24Ds began at Consolidated's Fort Worth facility, utilizing components created in San Diego. Consolidated-Fort Worth put together 303 B-24D aircraft. In July 1942 Liberator assembly began at Douglas Aircraft's Tulsa facility, although Douglas built only 10 D models before switching to the B-24E.

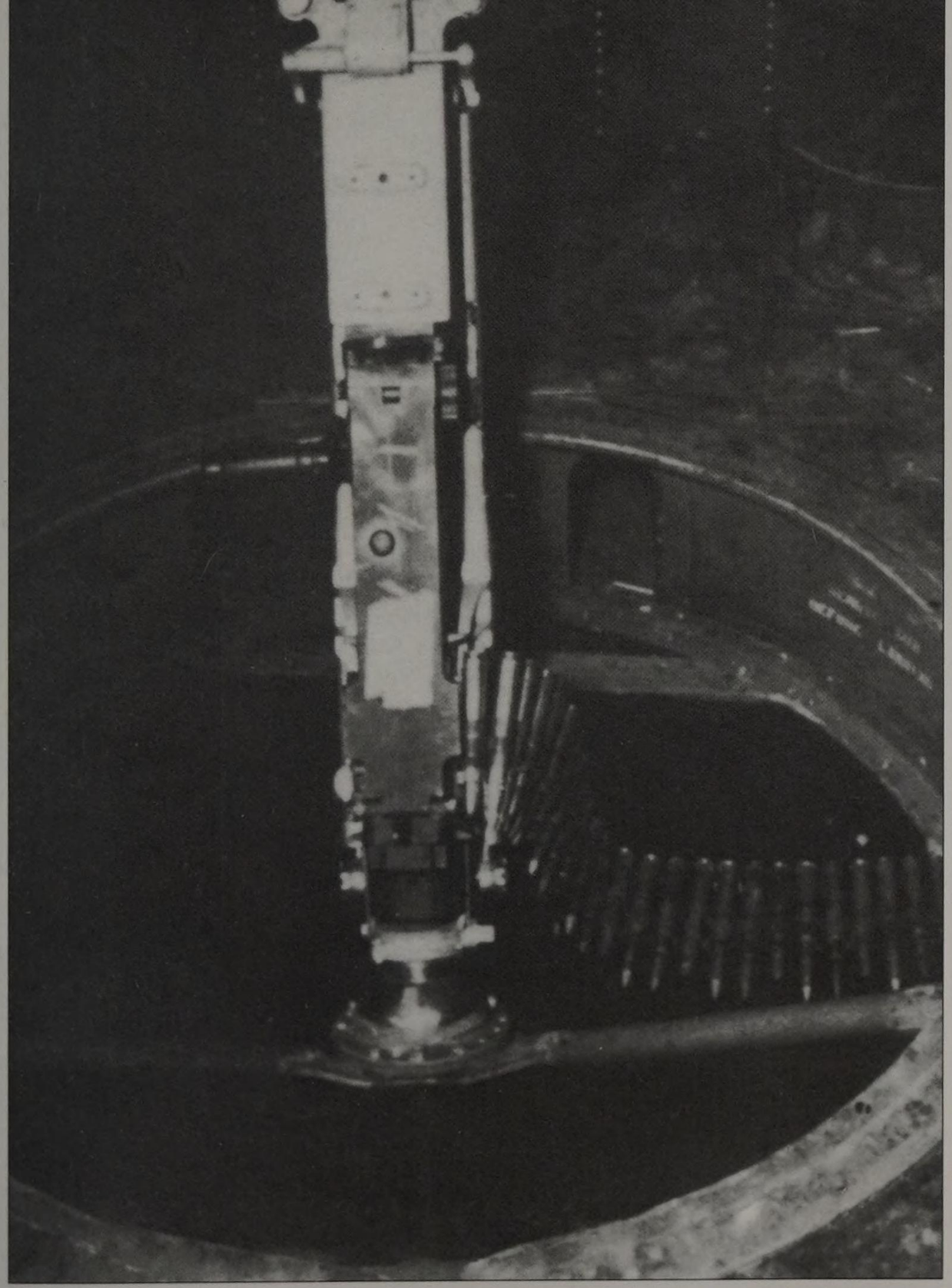
Efforts were made to make the B-24D better armed than previous models. The Martin upper turret introduced on the B-24C was retained, as was the Consolidated A-6A tail turret that had been tested on the B-24C. However, initially no ventral nor waist armament was carried. Waist guns, .50 caliber Brownings, were added to each side of the aircraft beginning with San Diego produced B-24D-25-CO serial number 41-24220 and Fort Worth built B-24D-10-CF serial number 42-63837. A remotely sighted and controlled retractable ventral turret appeared on the Liberator belly beginning with the 77th B-24D. However, due to sighting problems, this installation was discontinued after 287 installations were made, and a ventral tunnel reintroduced. However, beginning with B-24D-140-CO serial number 42-41164 a manned, retractable Sperry ball turret replaced the tunnel gun.

The B-24D was the model that brought the Liberator to fame, much of which stemmed from the use of the type in the daring but ill-fated raid on oil fields in Ploeşti, Romania.

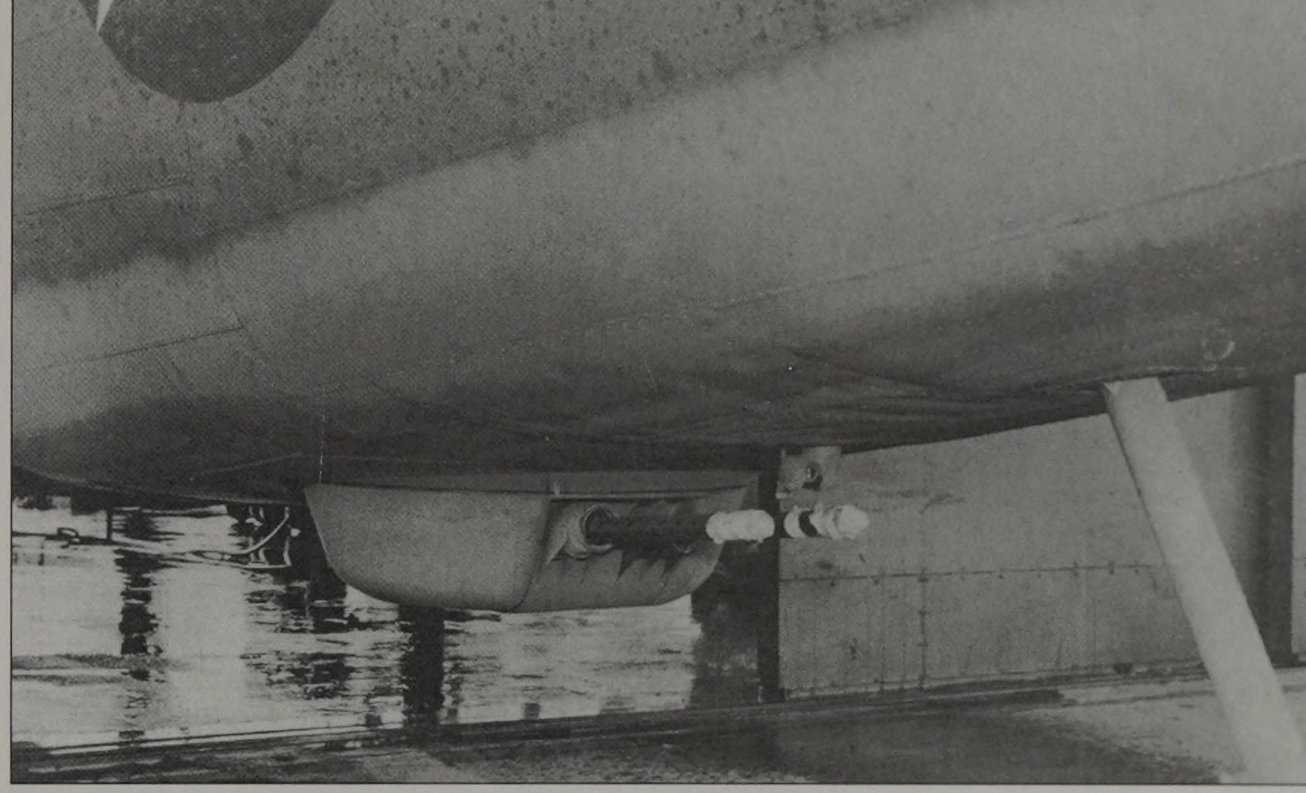
A B-24D wears the USAAF insignia with the red circle in the center of the star that was discontinued in mid-May 1942. On the top of the fuselage aft of the clear nose is a small, square window; other B-24Ds would have an astrodome in that position. The elongated front profiles of the engine cowls with the air intakes on the sides are apparent. (National Museum of the United States Air Force)

In a photo dated 28 July 1943, one of the first several B-24D-COs displays the port side of its nose. Stenciled on the fuselage is the serial number, apparently 40-2352. At this point, only one socket has been included in the clear nose for mounting a .50-caliber machine gun; later B-24Ds would add several more sockets to the nose and cheeks. (National Museum of the United States Air Force)

In a view of B-24D-CO 40-2352 from head-on, the less than two feet of ground clearance at the bottom of the fuselage is obvious. This and other early B-24Ds had the Pratt & Whitney R-1830-43 radial, turbo-supercharged engines. Douglas B-24Ds had the P&W R-1830-65, as did Consolidated San Diego and Fort Worth late-production blocks. (National Museum of the United States Air Force)

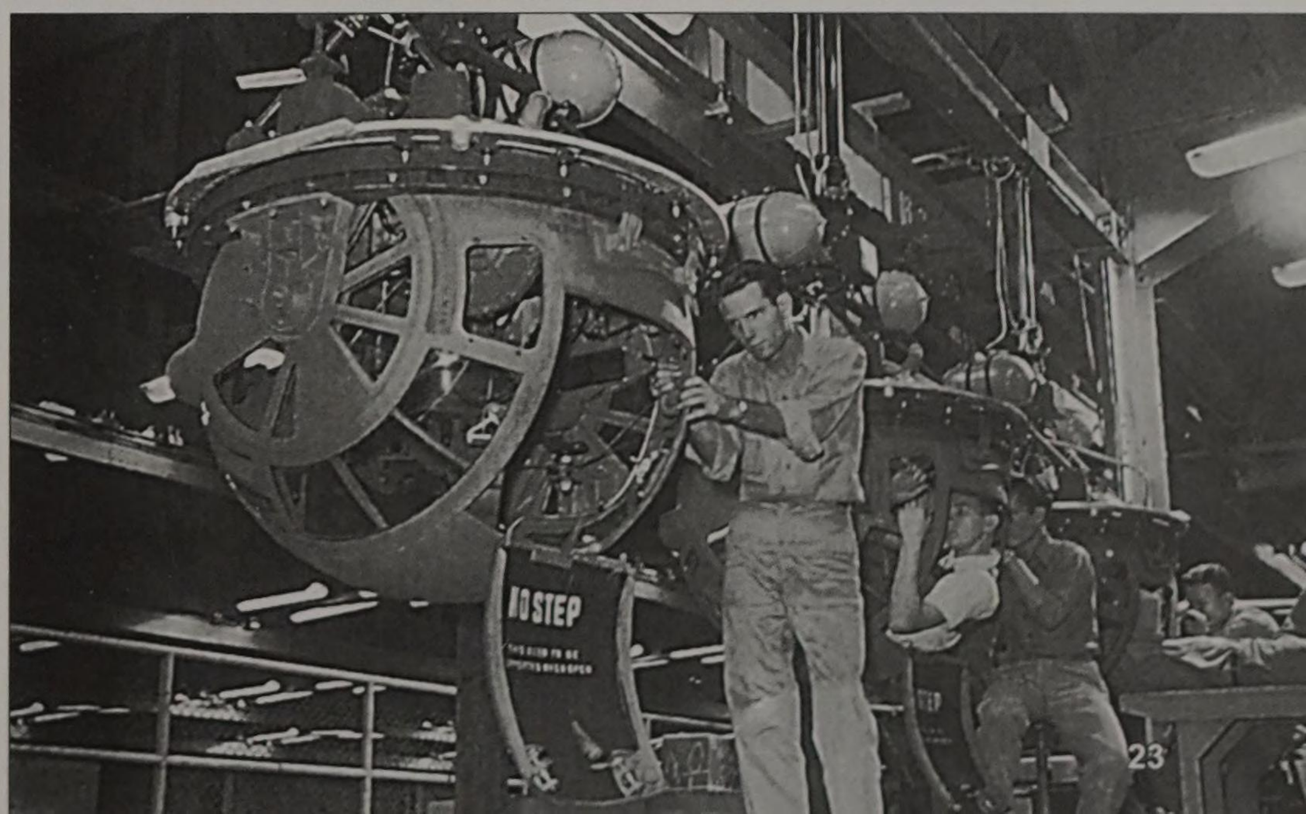


Although early B-24Ds had a tunnel machine gun toward the rear of the fuselage, other experimental mounts were tried before the introduction of the ball turret. This belly mount in a B-24D of the 44th Bomb Group at Shipdham, England, had a .50-caliber machine gun on a Bell adapter mounted on a flex socket attached to a crossbar. (National Museum of the United States Air Force)



Starting with B-24D-CO serial number 41-11587, a Bendix-designed remote-control belly turret with two .50-caliber machine guns was installed. The retractable turret was operated by a gunner using a periscope. After this arrangement proved virtually unworkable (only 287 B-24Ds received this type of turret), the tunnel gun was revived. (National Museum of the United States Air Force)

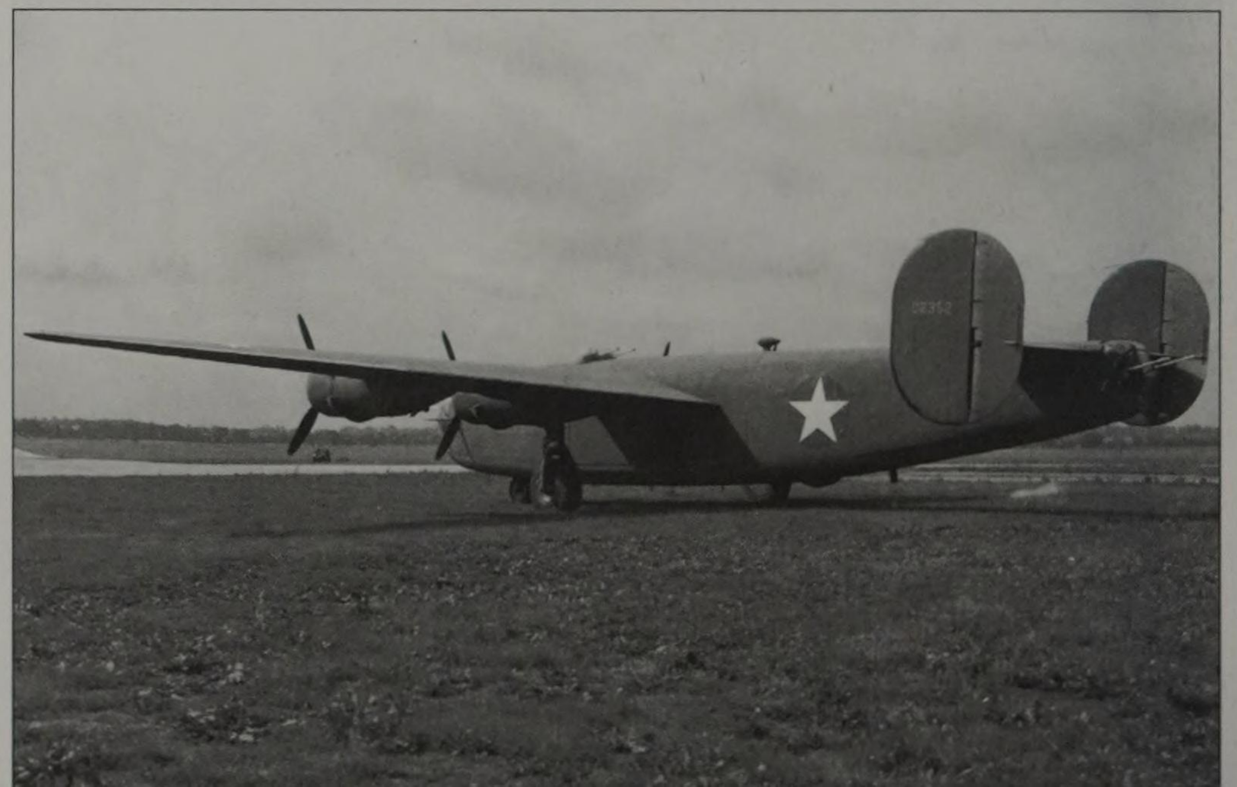
The aft-ventral tunnel gun was discontinued with B-24D-140CO 42-41164, and the A-13 ball turret, designed by Sperry and manufactured by Briggs, was installed in the belly. Here, ball turrets are being completed on an assembly line.



Sabu Dastagir, a well-known movie actor from India, became a U.S. citizen in 1944 and enlisted in the USAAF. As a sergeant, he served as a B-24 ball-turret gunner in the Pacific Theater, and he is shown posing in front of his station. The circular sighting window was made of two layers of safety glass with a space between them for defrosting. (National Archives)

A crewman shows the method of accessing the ball turret from outside the plane. Because of the very limited ground clearance of the fuselage, the B-24's ball turret was designed to retract into the fuselage for takeoff and landing using a hydraulic hand pump. During a mission, the gunner would enter the ball turret after the aircraft was in the air. (Stan Piet collection)

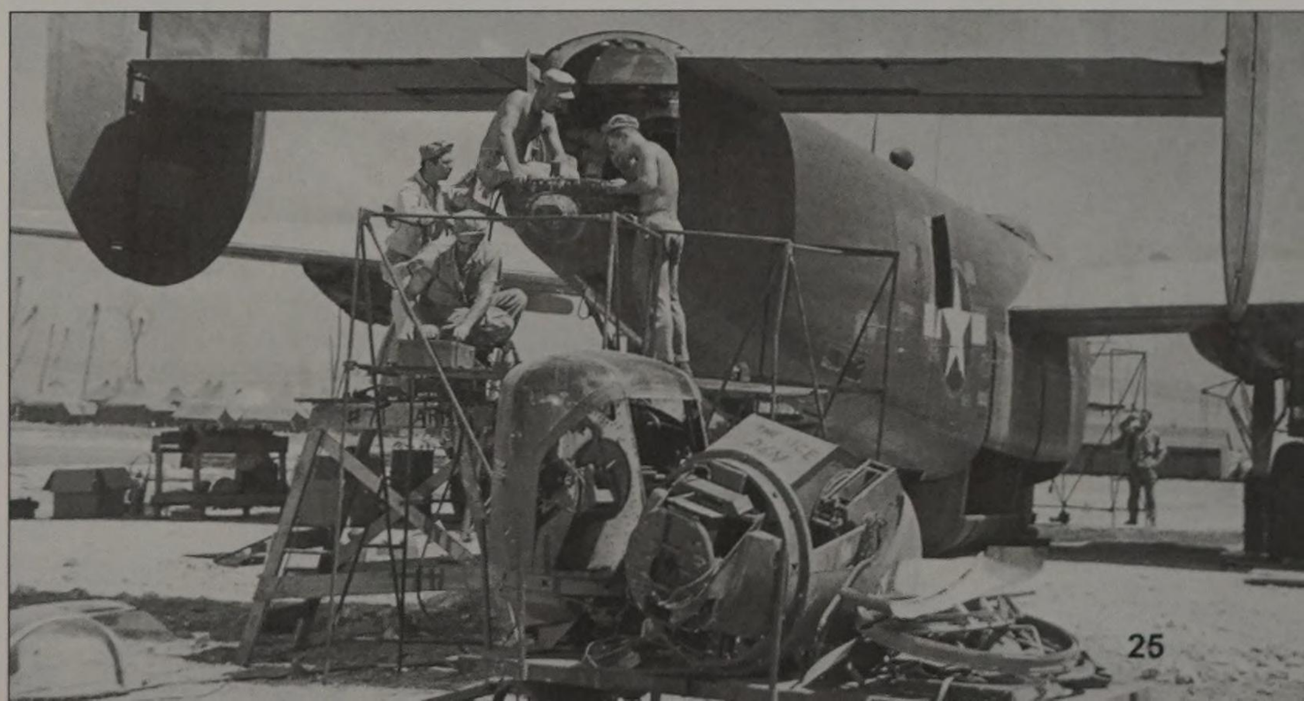
The fourth B-24D-CO, serial number 40-2352, displays its Consolidated A-6 tail turret. These were factory-installed on B-24Ds through serial number 42-40157 (the 35-CO production block), after which they were supplanted by the improved Consolidated A-6A turret. The flat, slanted sighting window was one identifying characteristic of the A-6. (National Museum of the United States Air Force)



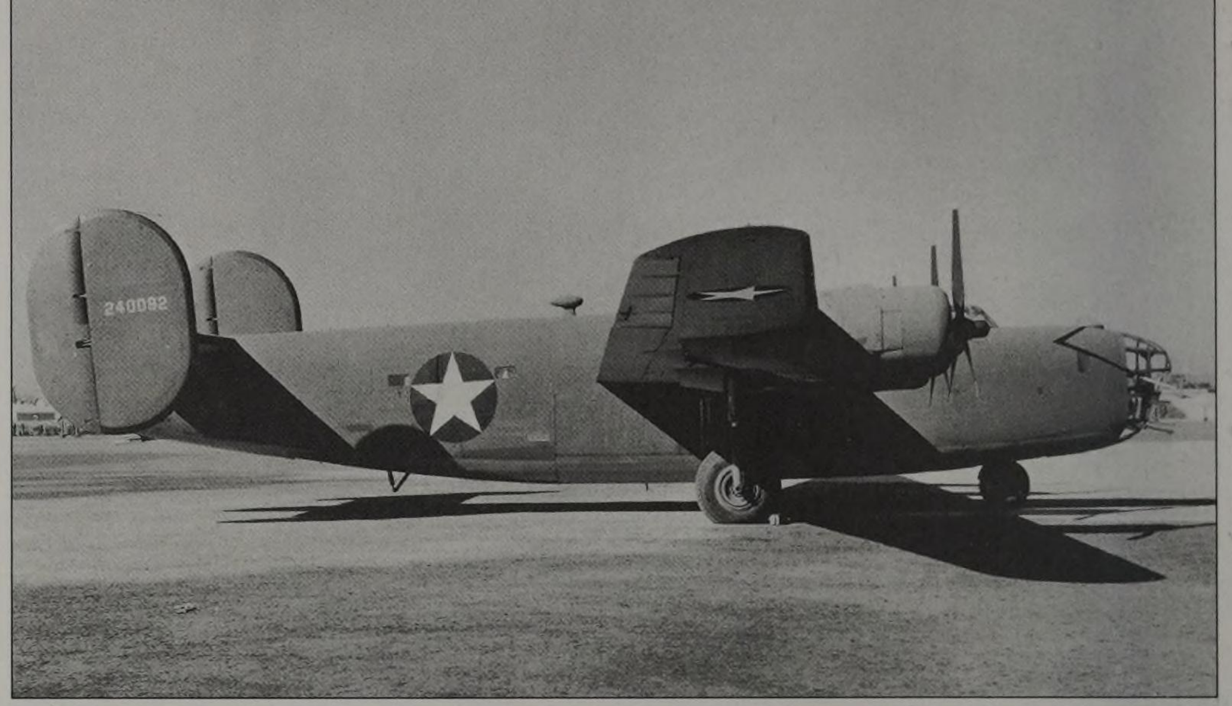
An A-6 tail turret with a man in the gunner's position is shown in a wartime color photo. The gun on the right side protruded 6 inches farther aft than the other gun. The beveled tubes attached to the ends of the perforated barrel sleeves are muzzle compensators: when properly adjusted, these counteracted the tendency of the guns to vibrate when firing. (National Archives)

Viewed from the left rear, the manner in which the .50-caliber machine guns are mounted in cradles on the outside of the turret is visible. Each muzzle compensator has two built-in screw clamps to secure them to the barrel sleeve. Below the turret are the bomb-signal lights, which indicated to following aircraft when bombs were being dropped. (Stan Piet collection)

Ground crewmen have removed, for repair or replacement, the tail turret from a Liberator of the 30th Bomb Group, 38th Bomb Squadron, on Kwajalein on 28 April 1944. Two Consolidated A-6 turrets with machine guns removed are lying in the foreground. A wag has written on the frontal plate of the turret to the right, "The Vice Den." (National Archives)



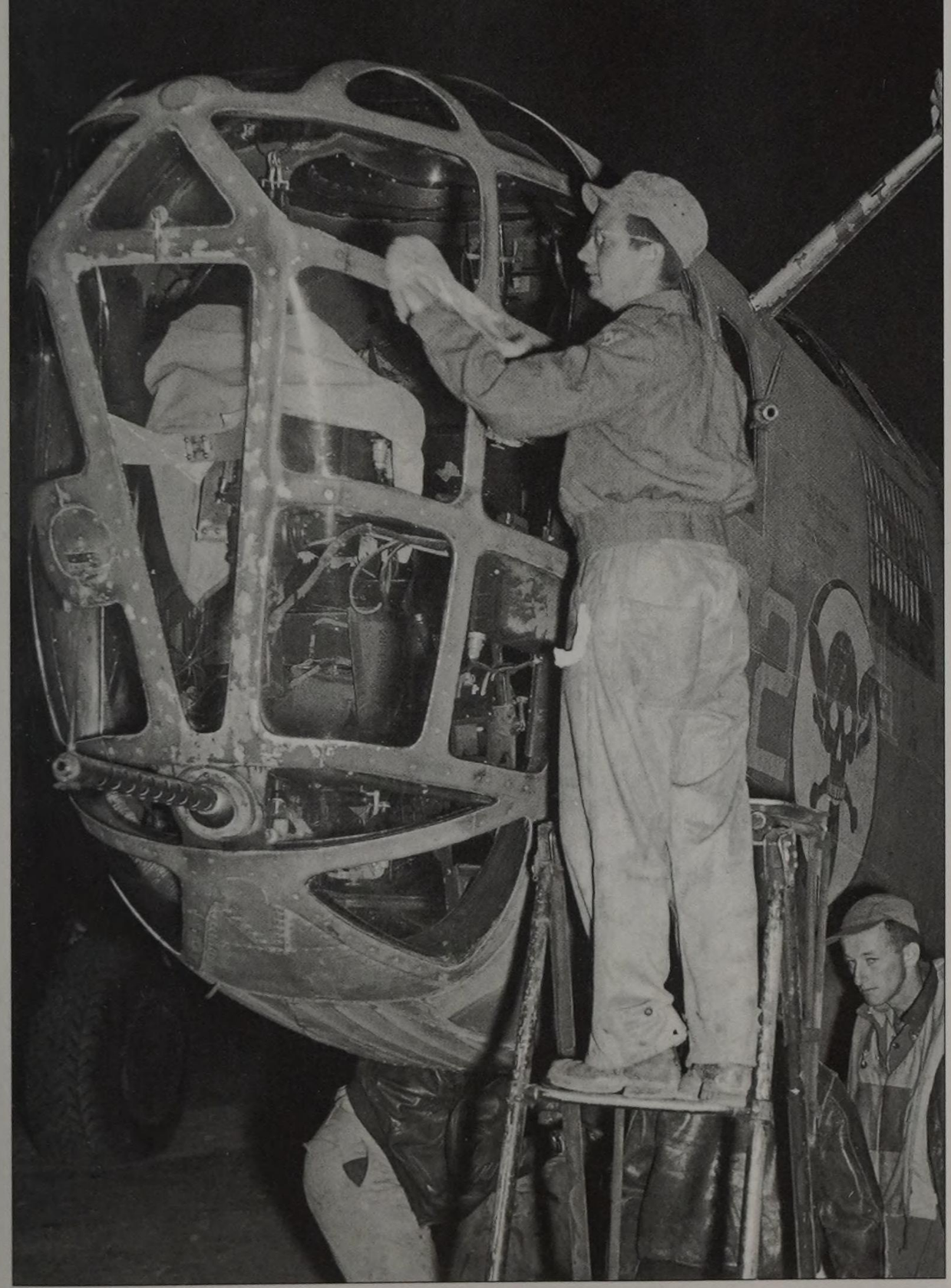
Originally part of Halpro, a task group that served in the Middle East, *Wash's Tub,* B-24D-CO serial number 41-11636, later flew with the 514th Bomb Squadron of the 376th Bomb Group "Liberandos" in North Africa. After 73 combat missions, the plane returned to the States on a war bond drive, complete with a map of its combat missions. (National Archives)



The Liberator sometimes would skid on its aft fuselage during landings, so early B-24Ds were fitted with a rubber bumper on the bottom rear of the fuselage. Starting with B-24D-1-CO, a retractable skid with an oleo shock-strut was installed below the waist windows. The skid on B-24D-30-CO serial number 42-40092 is shown lowered. (National Museum of the United States Air Force)

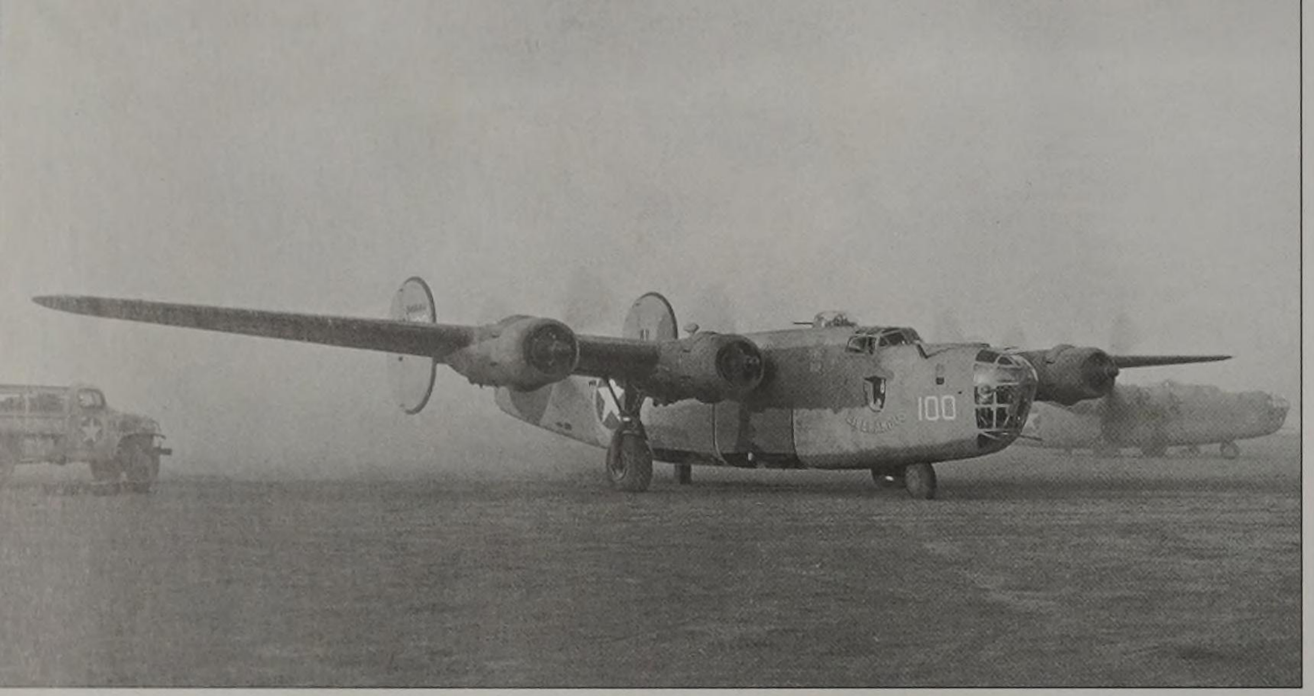
The Squaw, B-24D-CO serial number 41-11761 of the 98th Bomb Group "Pyramidiers," was a veteran of the famous 1 August 1943 low-level bombing raid against the oil refineries at Ploeşti, Romania. In addition to cheek guns, it sported the group insignia and a map of combat missions flown when it was sent back to the United States. (National Archives)

A crewman is spray-painting some features on the map on the side of *The Squaw* while two others point at a chart of the Mediterranean. The .50-caliber machine gun mounts on the cheeks were a field modification, consisting of a K-4 socket mount and a sighting window. A fixed .50-caliber machine gun is at the bottom of the nose. (National Archives)

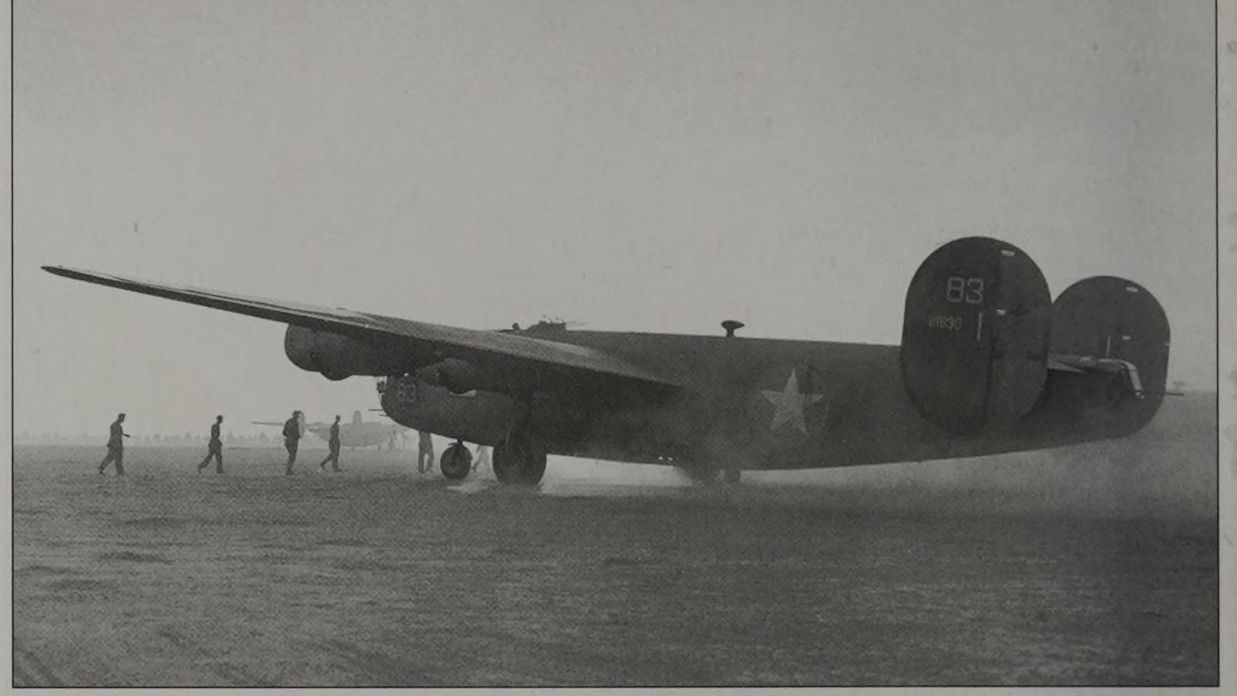


At Benghazi, Libya, on 1 August 1943, a ground crewman polishes the Plexiglas nose of *Doodlebug,* a 376th Bomb Group B-24D-1-CO, 41-23724, just prior to the raid on Ploeşti. In addition to the cheek gun to the crewman's back, the nose machine gun socket has been relocated to the bottom of the nose. Note the 512th Bomb Squadron insignia. (National Archives)

On 1 August 1943, with oil-producing facilities exploding all around them, Liberators of the 98th Bomb Group "Pyramidiers" race at treetop level toward Ploeşti's White IV target area, containing the Astra Română and Unirea Orion oil refineries. To the right is *Li'l Jughaid,* B-24D-1-CF serial number 42-63758, of the 415th Bomb Squadron. (National Museum of the United States Air Force)



Teggie Ann, the command ship of Col. Keith Compton, commander of the 376th Bomb Group, was photographed at Benghazi upon its return from the raid on Ploeşti on 1 August 1943. The insignia of the Liberandos is below the cockpit of this B-24D-85-CO, serial number 42-40664. An extra .50-caliber gun socket is on the side of the clear nose. (National Archives)



Ground crewmen at Benghazi file past *Kitty Quick,* B-24D-CO serial number 41-11630, upon the bomber's return from the 1 August 1943 raid on the Ploeşti refineries. This Liberator, which also reportedly went by the name *Chum V,* was assigned to the 376th Bomb Group, 515th Bomb Squadron, and was piloted by Jerome P. DuFour. (National Archives)

Liberators destined to participate in Operation Tidal Wave, the 1 August 1943 raid on the Ploeşti oil refineries, fly low in formation over an American camp in Libya. For 12 days in late June 1943, the attack force of five bomb groups conducted low-level training missions over the Libyan desert, including attacks on a mockup of the target area. (National Museum of the United States Air Force)

A B-24D of the 98th Bomb Group (top right), probably *The Sandman,* flies through the cauldron of the Astra Română Refinery at Ploeşti on 1 August 1943. This group, commanded by Col. John R. Kane, had to fly through the fires, smoke, and secondary explosions created by the 93rd Bomb Group on an earlier bomb run against this target. (National Museum of the United States Air Force)

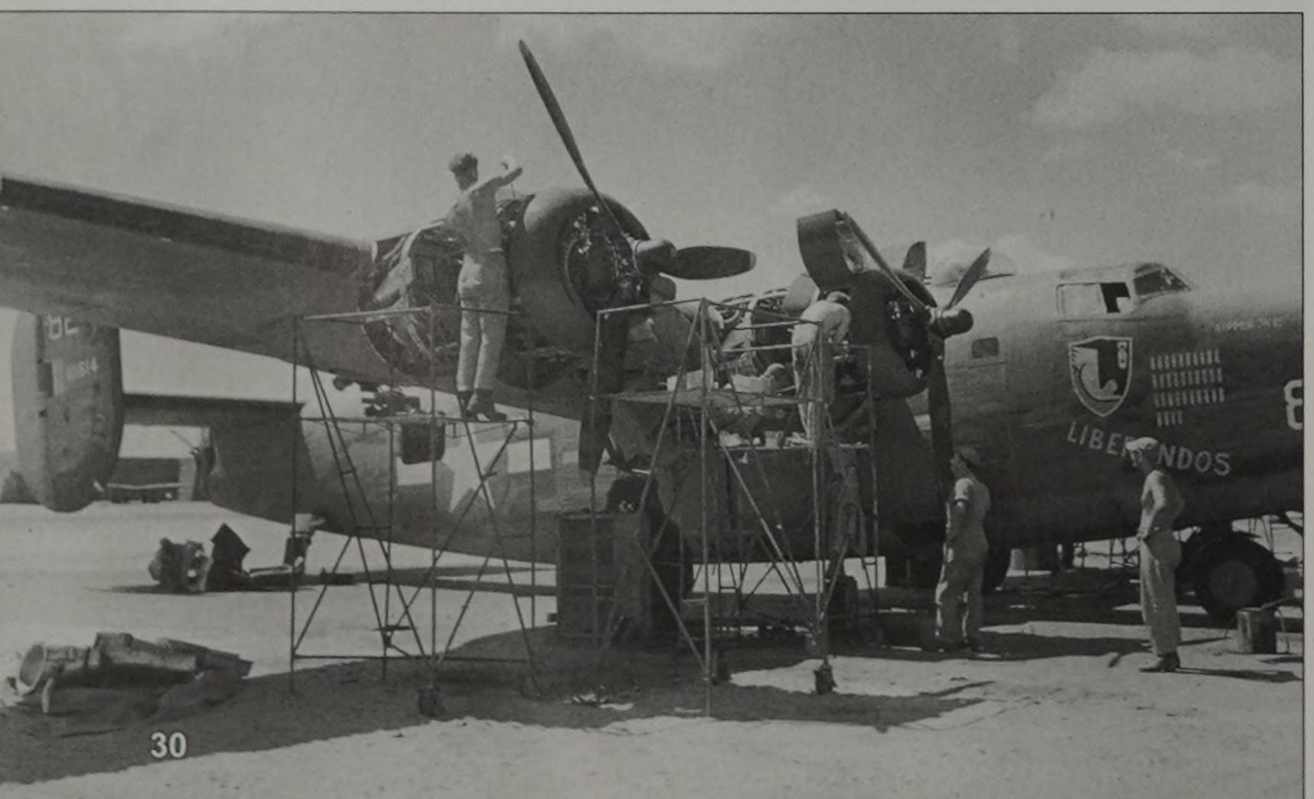
In one of the most iconic photographs of World War II, *The Sandman,* B-24D-55-CO serial number 42-40402, races low over the triple stacks of the Astra Română Refinery. During the raid, the bomber survived a collision with a barrage-balloon cable. The photograph was taken from the tail of another Liberator, *Chug-a-Lug.* (National Museum of the United States Air Force)

At the top of the photograph, B-24Ds swoop in for their bombing run over the Columbia Aquila Refinery at Ploeşti on 1 August 1943. Fires and explosions are already breaking out in the refinery below. This refinery was designated the White V target area, and the mission of bombing it was assigned to the 44th Bomb Group *Eight Balls.* (National Museum of the United States Air Force)

Kate Smith, B-24D-85-CO serial number 42-40654, assigned to the 98th Bomb Group, 345th Bomb Squadron, is undergoing an overhaul by crewmen from the 43rd Service Group at a base near Benghazi, Libya, on 1 November 1943. The aircraft had suffered a crash during a landing at Banînah ("Benina"), Libya, three months earlier, on 29 July. (National Archives)

Crewmen at a base in Egypt confer next to *Snow White and the Seven Dwarfs,* B-24D-CO, serial number 41-11913, of the 98th Bomb Group, 343rd Bomb Squadron. This bomber was lost in a midair crash on 1 May 1943 and should not be confused with another B-24D of the same name that participated in the August 1943 raid on Ploeşti, Romania. (National Archives)

Mechanics at Deversoir, near al-Ismâ'îlîyah, along Egypt's Suez Canal, perform maintenance the Pratt & Whitney Twin Wasp engines of *Ripper the 1st* prior to the aircraft's flight back to the United States in 1943. This Liberator's tail number, 111614, identifies it as a B-24-CO. The aircraft was assigned to the 376th Bomb Group, 515th Bomb Squadron, of the Ninth Air Force. (National Archives)



Another 515th Bomb Squadron Liberator, *Chum VII,* B-24D-53-CO serial number 42-40392, did not fly with its squadron in the 1 August 1943 Ploeşti mission. It was lost on 13 August 1943 while making an emergency landing at El Batham, Tunisia. Contrasting with the Sand-colored sides of the aircraft are the Neutral Gray bomb-bay doors. (Stan Piet collection)

One of the most familiar Liberators to today's enthusiasts is *Strawberry Bitch,* B-24D-160-CO 42-72843, which served in the 376th Bomb Group, 512th Bomb Squadron, and now resides at the National Museum of the U.S. Air Force. The aircraft is shown sitting in a flooded area at the 58th Service Squadron Depot in 1943, its port vertical tail removed. (National Museum of the United States Air Force)

At a training base, an Autocar U7144T 4-ton truck towing two fuel semi-trailers is parked in front of two Liberators, including B-24D-145-CO serial number 42-41195 in the background. Their main and auxiliary wing tanks held approximately 2,814 U.S. gallons. The red border on the U.S. insignia was authorized from 28 June to 14 August 1943. (Stan Piet collection)

An early B-24D rolls down a taxiway at Wright Field, Ohio. The red circle in the national insignia indicates the photo was probably taken before June 1942. On this Liberator, the pitot tube masts are arranged horizontally on the cheeks in front of the side windows. In front of the top turret, a crewman's head is protruding through the flight-deck hatch. (Stan Piet collection)

Three B-24Ds are flying a training mission out of Clovis, New Mexico. The nearest Liberator has the red tail number 124102, identifying the aircraft as the third B-24D-20-CO. What appears to be a diagonal, white bomb is painted on the side of the fuselage below the cockpit, and the yellow aircraft number, 102, is below the cheek. (Stan Piet collection)

In another photo of B-24Ds flying high above the plains on a training flight out of Clovis, New Mexico, from left to right, they bear the large, yellow aircraft numbers 764, 426, and 864. Each aircraft has a socket-mounted .50-caliber machine gun near the bottom of the clear nose. The Liberator to the right has both of its waist windows open. (Stan Piet collection)

B-24D-20-CO serial number 41-24102 is again in the foreground in another picture of a flight of Liberators based at Clovis Army Air Base. During World War II, the 16th Bombardment Operational Wing was the resident training unit at Clovis, and it prepared many B-24 bomber crews for service in the Europe starting in January 1943. (Stan Piet collection)

A B-24D sits along a runway at Hensley Field, Dallas, Texas, in June 1942. At the time, this base was the headquarters of the Midwest Area of the U.S. Army Air Forces Ferrying Command. The two crouching ground crewmen are at the ready with fire extinguishers: standard operating procedure should a fire start while the aircraft prepares for takeoff. (Stan Piet collection)

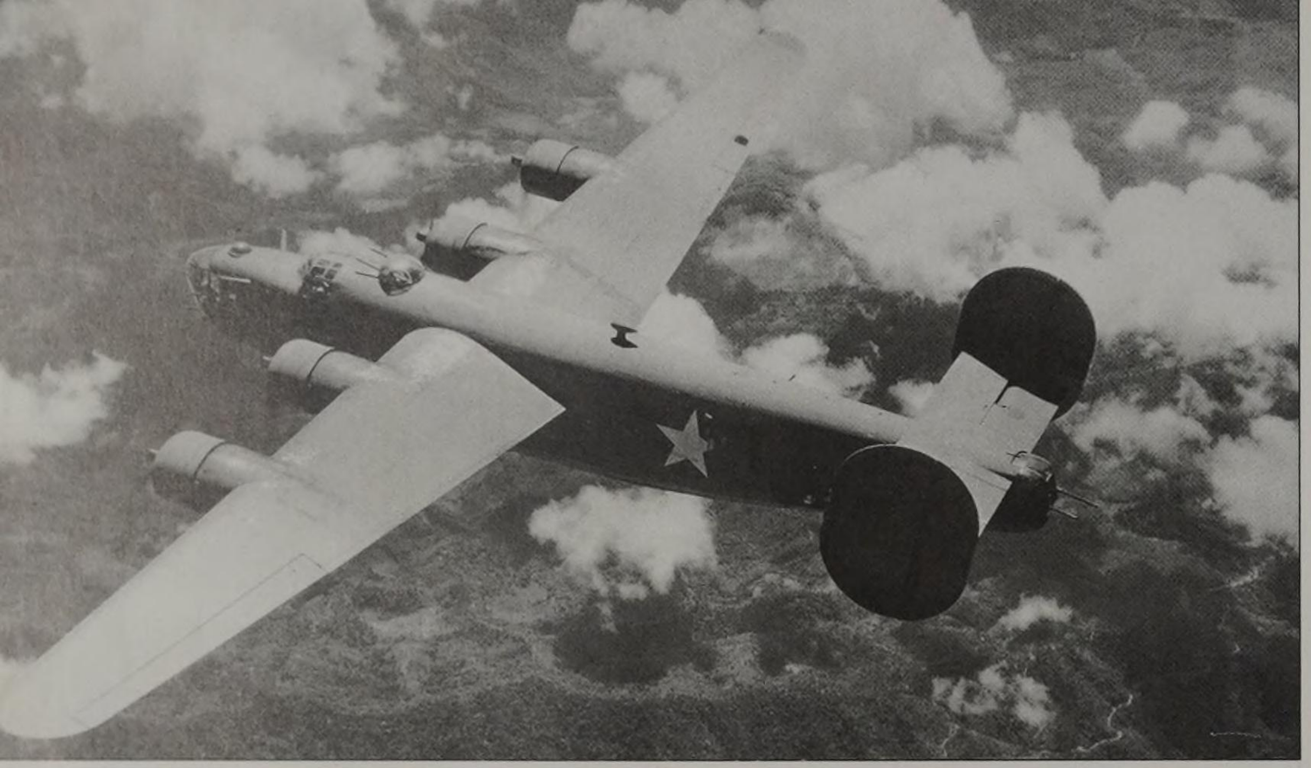
Three B-24Ds fly in formation. The nearest one is B-24D-75-CO 42-40597, while the second aircraft is a B-24D-1-CF built by Consolidated, Fort Worth. The second aircraft wears a nonstandard national insignia with yellow bars. It has been speculated that these Liberators were participating in a study to test the visibility of the insignia. (National Museum of the United States Air Force)

Sgt. Joseph Daigle peers through the sight of a top turret in 1943. Chutes for .50-caliber ammunition are between the guns. The first top turret used in the B-24D was the Martin A-3B, with the Martin A-3C and A-3D top turrets being introduced later. The turret had 360-degree rotation, and the guns had an elevation range from -6.5 to +85 degrees. (National Museum of the United States Air Force)

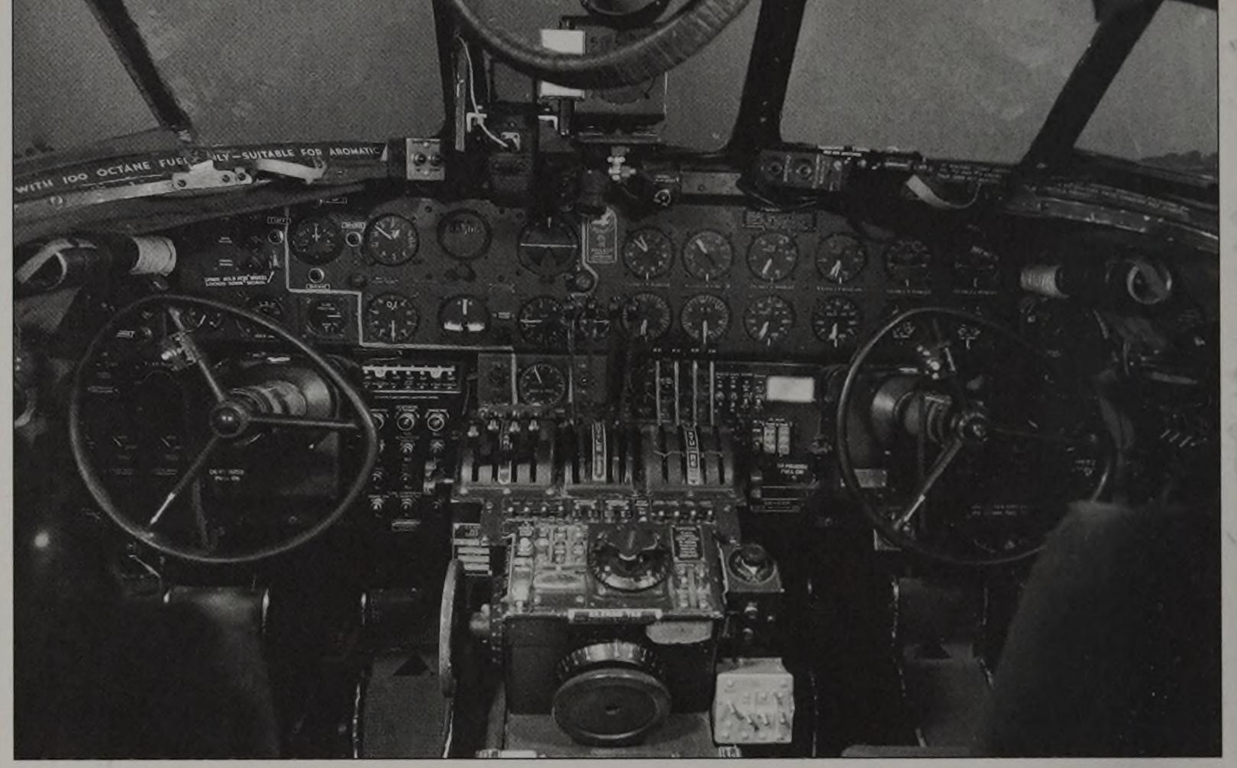
Nose-gear collapse was a common failing of B-24s. *Geronimo,* B-24D-1-CO 41-23744, of the 93rd Bomb Group, plowed nose-first into muddy ground when its nose gear collapsed at a base in North Africa in late 1942. The white star in the national insignia had been repainted in a subdued color, and mottling was applied to the vertical tail. (National Museum of the United States Air Force)

A primitive character from the cartoon *Popeye* was the inspiration for *The Goon,* B-24D-20-CO serial number 41-24183, of the Fourteenth Air Force's 308th Bomb Group, 374th Bomb Squadron. Good views are provided of the red fire-extinguisher door, cheek machine gun mount and window, and the bomb-bay door, which rolled up when opened. (Stan Piet collection)

An M-5 bomb trailer laden with bombs rests near *Shoot Luke,* B-24D-1-CO serial number 41-23729, of the 93rd Bomb Group, 328th Bomb Squadron, Eighth Air Force. The national insignia has a subdued star and a painted-over ring around it. This Liberator was shot down on 18 October 1943 over the North Sea with the loss of the entire crew. (National Museum of the United States Air Force)



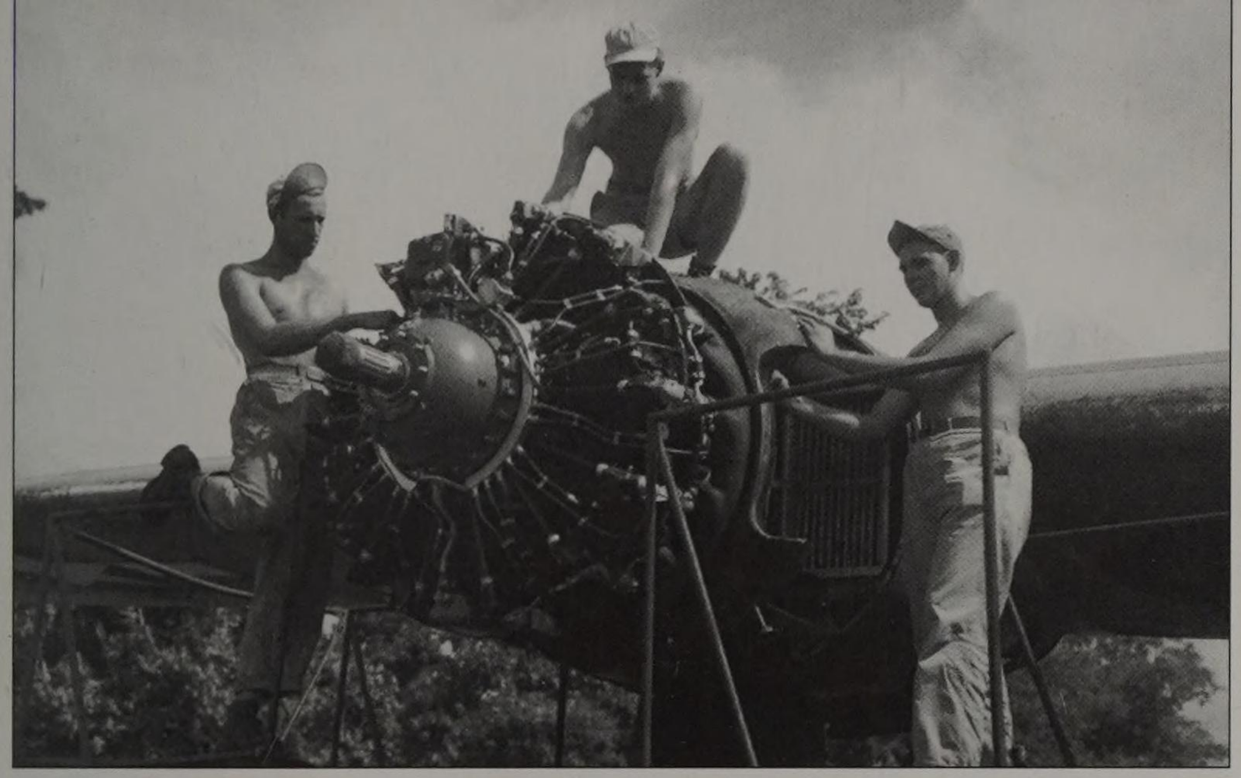
A B-24D of the 7th Bomb Group, Tenth Air Force, based at Pandaveswar, India, prepares to strike a Japanese target in Rangoon, Burma, in 1943. From this perspective, both the high aspect ratio (the length of the wing compared to its chord, or width) and the highly pronounced upper airfoil of the Liberator's Davis wing are apparent. (National Archives)



The pilot's and copilot's instrument panel stretched across the width of the B-24D's cockpit. Above the center of the panel was the magnetic compass. The control yokes were circular, with slightly flattened tops. At the center was a control console with controls for the engines, superchargers, and propellers, as well as trim wheels. (National Museum of the United States Air Force)

Thumper, B-24D-30-CO 42-40073 with the 307th Bomb Group, 424th Bomb Squadron, Thirteenth Air Force in the South Pacific, was photographed early in its career undergoing work by the 29th Service Group. The men are performing repairs on a bomb rack. In the background is *Laden Maiden,* a B-24D-35-CO of the same squadron. (National Archives)

At a 29th Service Group depot, B-24s are lined up for maintenance, including a B-24D in the foreground. In addition to a cheek gun on the aircraft's port side, it has .50-caliber machine guns on the top, bottom, and starboard side of the clear nose. The astrodome has been removed from that B-24 as well as from the one at the bottom center of the photo. (National Archives)

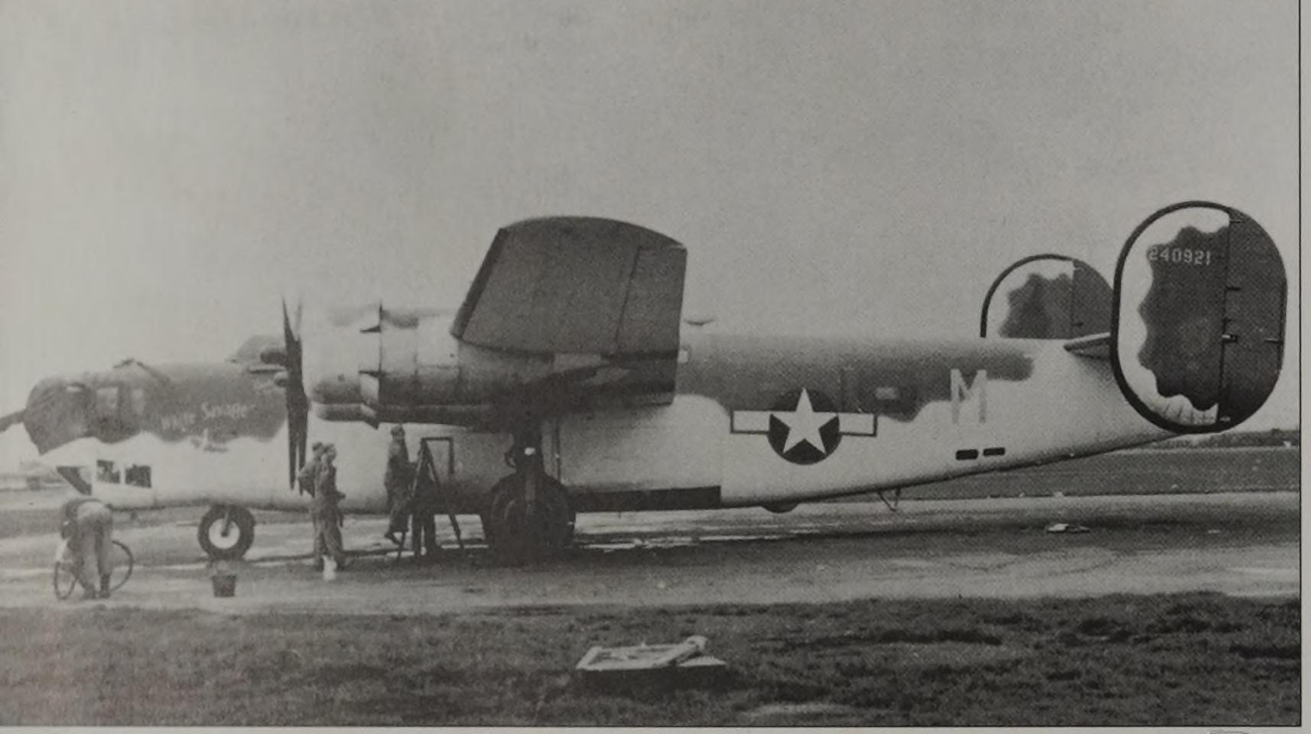


Ground crewmen of the Thirteenth Air Force perform maintenance on the number-four Pratt & Whitney R-1830 Twin Wasp engine on a B-24 somewhere in the Pacific. From left to right, the men were identified as Staff Sergeant Berry, Private First Class Waldrop, and Corporal Dunckel. Berry is working on an opening where a cylinder is removed. (National Archives)

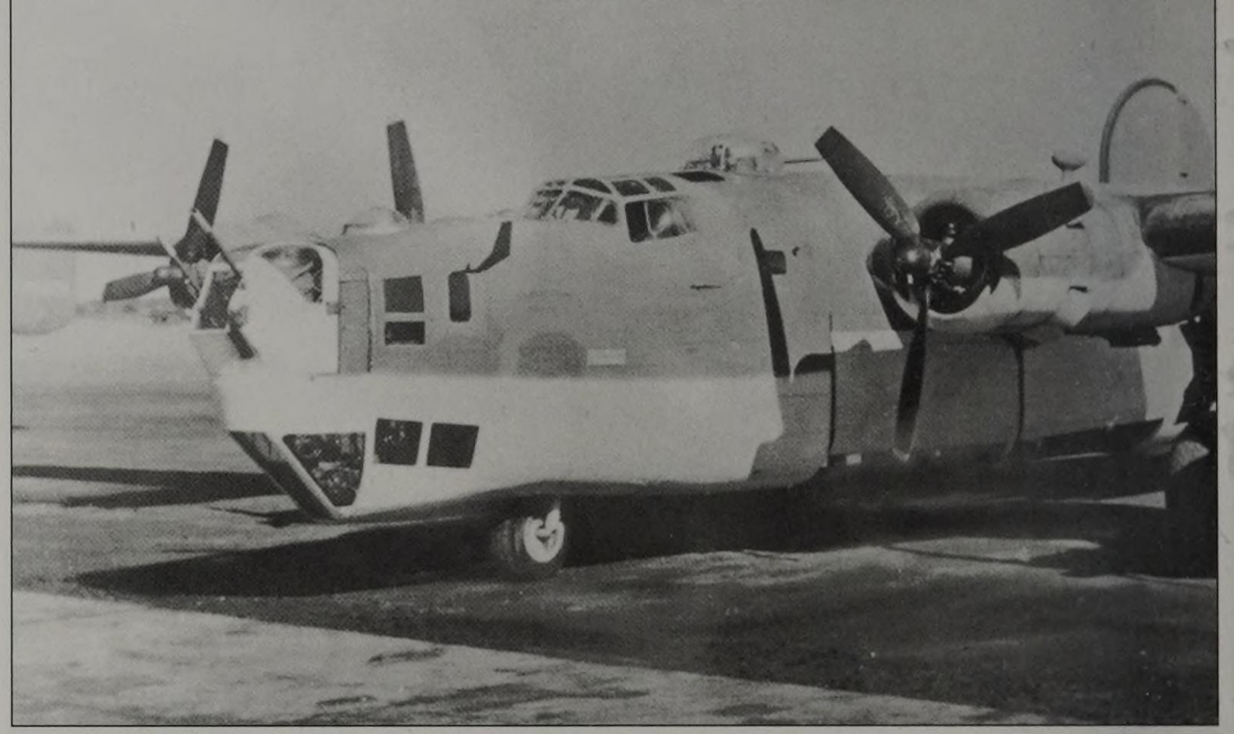
Jerk's Natural B-24D-1-CO serial number 41-23711, served with the 93rd Bomb Group, 328th Bomb Squadron, of the Eighth Air Force. This veteran of the Ploeşti Raid wore a faded shamrock below the cockpit side window, signifying a visit to Ireland for modifications, and its mission scoreboard included a claimed sinking of a U-boat. (National Museum of the United States Air Force)

Assigned to the 45th Bomb Group's short-lived (1941–42) 10th Antisubmarine Squadron, B-24D-50-CO serial number 42-40340 sits on a hardstand at the Gander, Newfoundland, air base. The paint scheme of Olive Drab over White was a camouflage scheme used on USAAF aircraft detailed to antisubmarine work over the Atlantic Ocean. (Stan Piet collection)

Also photographed at Gander was another B-24D-50-CO, serial number 42-40328. In the white area on the fuselage aft of the national insignia are two small scanning windows for the tunnel gunner. This aircraft reportedly later served under the nickname *Nitemare* with the 480th Antisubmarine Group, 2nd Antisubmarine Squadron. (Stan Piet collection)



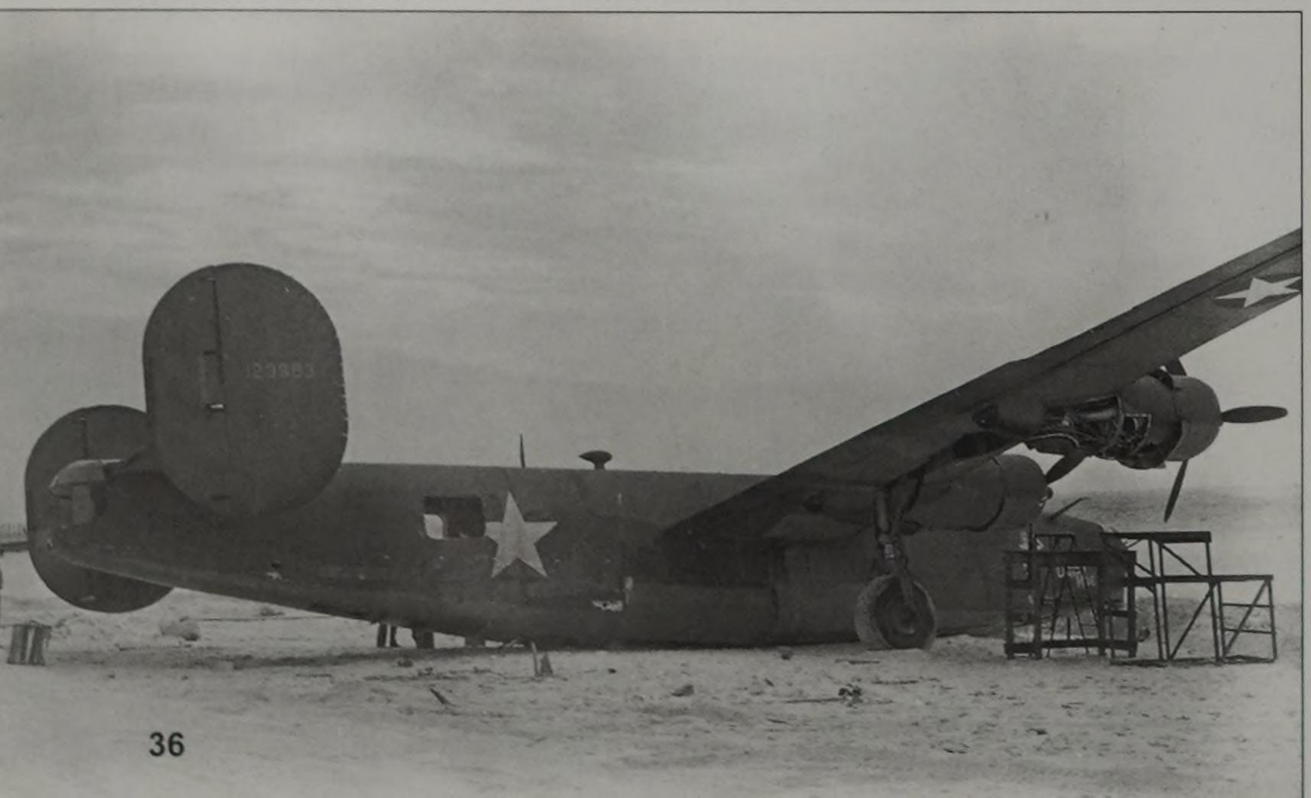
White Savage, a B-24D-115-CO serial number 42-40921, served with the 479th Antisubmarine Group and was reportedly photographed while assigned to the 482nd Bomb Group at USAAF Station 590, Burtonwood. The original clear nose of this aircraft had been replaced by a modified nose and turret at the Oklahoma City Depot. (National Museum of the United States Air Force)

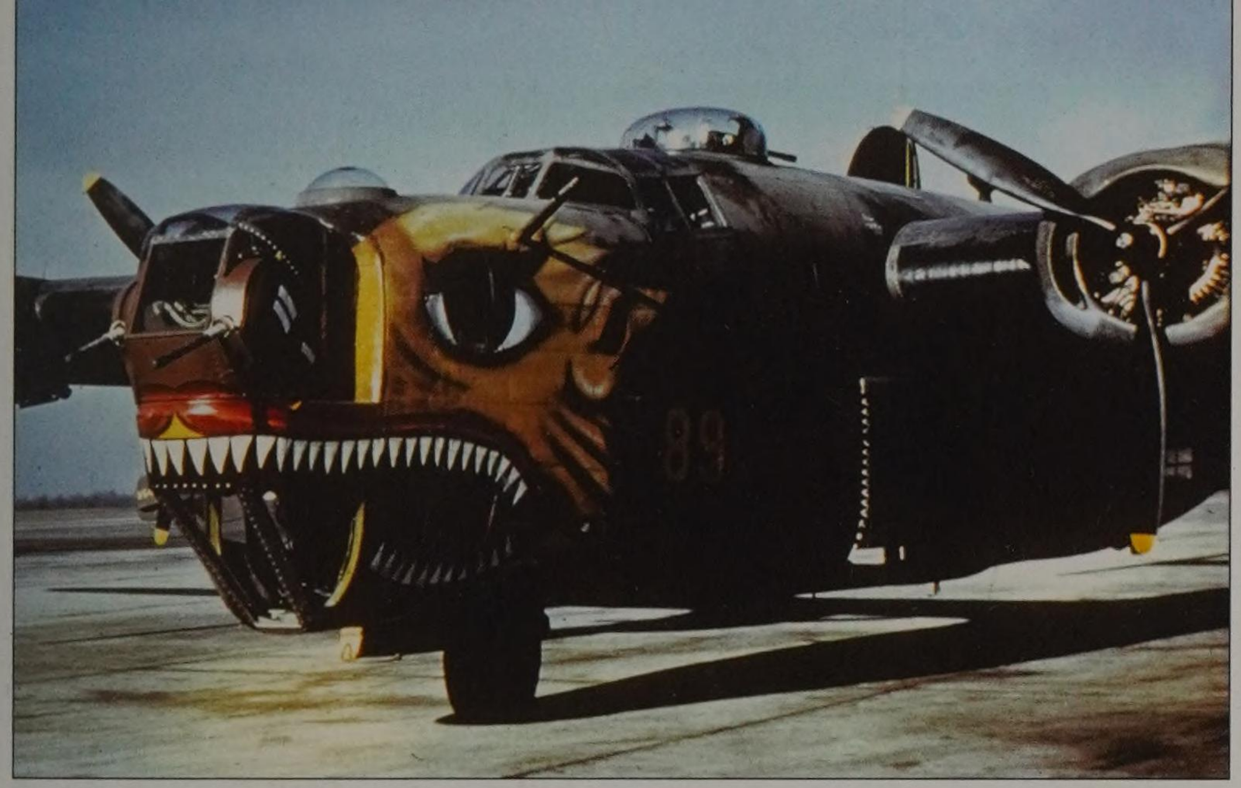


This B-24D with antisubmarine camouflage has been modified with a new nose section, including a Consolidated A-6A turret, basically the A-6A tail turret with extra fairings to reduce drag. This type of nose, with the pronounced chin and two rectangular scanning windows on each side, was produced by the Oklahoma City Modification Center. Aft of the turret is an array of three scanning windows for the navigator.

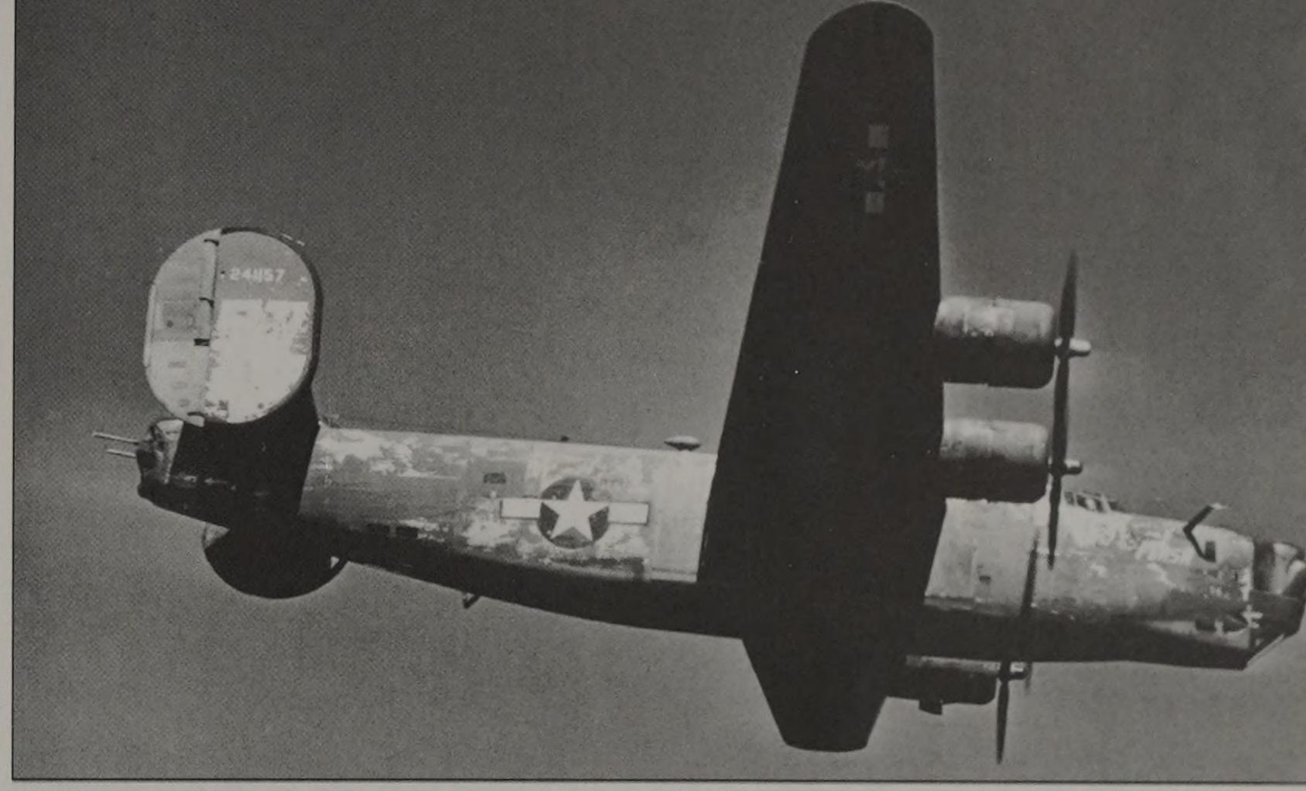
This B-24D-15-CO, nicknamed *Daisy Mae* after a character in the *Li'l Abner* comic strip, crashed on Midway Island upon its return from a bombing raid by the 42nd Bomb Squadron to Wake Island in late July 1943. Assigned serial number 41-23983, this aircraft was fitted with a tail stinger machine-gun mount instead of a tail turret. (National Museum of the United States Air Force)

Daisy Mae is viewed from the port side following its crash landing on Midway, as personnel inspect the damages and assess the prospects of repairing the aircraft. The astrodome has been removed from the deck to the front of the cockpit windshield, and a t-shirted man is standing up through the open escape hatch of the flight deck. (National Museum of the United States Air Force)





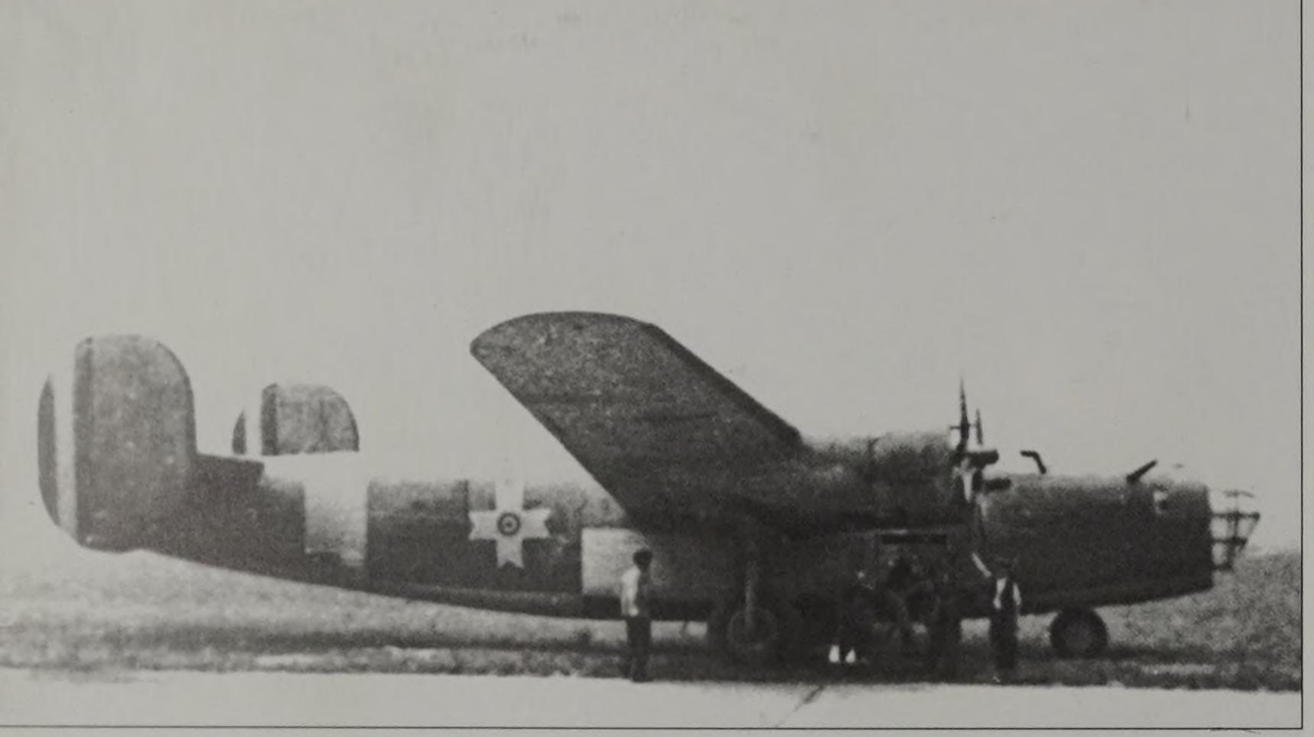
This B-24 with the frightful tiger's head nose art was assigned to the 308th Bomb Group of the Fourteenth Air Force. It has the Oklahoma City modified nose with a Consolidated A-6A nose turret. The pronounced dip in the chin led crewmen to call this nose the "droop snoot." The aircraft's individual number, 89, is painted aft of the tiger's head. (Stan Piet collection)



Flash was B-24D-140-CO serial number 42-41157 of the 28th Bomb Group, 404th Bomb Squadron "Pink Elephants" in the Aleutian Islands. It had the Oklahoma City nose modification with the A-6A power turret. The harsh Alaskan weather had severely damaged the paint of the aircraft. Barely visible is the large number 57 on the tail. (National Museum of the United States Air Force)

A B-24D of the 28th Bomb Group, 404th Bomb Squadron, is positioned for takeoff on a steel-matting runway at Shemya Army Air Force Base in the Aleutians. This bomber has its original Plexiglas bombardier's nose, and is equipped with air-surface-vessel (ASV) radar antennas underneath the wings and on top of the rear of the fuselage. (National Museum of the United States Air Force)

During World War II, Liberators were also stationed on Adak in the Aleutian Islands. These B-24Ds, photographed in 1942, had been consigned to the salvage yard on Adak. The propellers are missing from the closest Liberator, and the vertical tails have been removed, possibly for installation as replacement parts on another B-24. (National Museum of the United States Air Force)



Boiler Maker II, B-24D-5-CO serial number 41-23782, of the 98th Bomb Group, 415th Bomb Squadron, was shot down during the 1 August 1943 raid on Ploeşti. Although severely damaged, the Romanians repaired the bomber to flying condition using parts from other downed Liberators, and it appears in this photo with Romanian markings. (Mihail Moisecu)

Some war-weary Liberators got high-visibility paint schemes and served second careers as assembly aircraft, helping bombers get into formation after takeoff. One such aircraft was *Pete the Pom Inspector,* a B-24D-53-CO of the 467th Bomb Group, 790th Bomb Squadron, Eighth Air Force, formerly *Heaven Can Wait* of the 566th Bomb Squadron. (National Museum of the United States Air Force)

This polka-dotted B-24D-30-CO, serial number 42-40127, nicknamed *First Seargeant,* also served as an assembly aircraft in the Eighth Air Force, serving with the 458th Bomb Group, 754th Bomb Squadron. Arrayed at intervals on the aircraft were lights, allowing the aircraft to be illuminated for better visibility at night. Weapons have been removed. (National Museum of the United States Air Force)

***Lady Be Good,* B-24D-CO 41-24301, of the 514th Bomb Group, 376th Bomb Squadron, was returning from a bombing mission against Naples, Italy, on 4 April 1943 when its crew got lost, flew past their home base at Sulûq ("Soluch") Field in Libya, and crash-landed in the desert. The well-preserved wreck was found in 1958, along with the remains of eight of the nine crewmen, creating an international sensation in the news media.**

Liberator III

The RAF acquired its own version of the B-24D through Lend-Lease. Designated the Liberator Mark III, these aircraft differed from their American cousins in most cases by having Bouton-Paul rear turrets, armed with four .303 Browning machine guns, in lieu of the original Consolidated tail turret. Those that did retain their original tail turrets were designated Liberator Mk. IIIA. Some of these aircraft were fitted with Leigh Lights for use in conjunction with Air-to-Surface Vessel (ASV) radar for antisubmarine work.

The Leigh Light was a carbon arc searchlight, which, in the case of the Liberator, was mounted beneath the wing in a nacelle 32 inches in diameter. With a maximum beam intensity of 90 million candles, the light could be rotated electrically 50 degrees to either side and 48 degrees down from horizontal. It was considered best to conduct these patrols from an altitude of 1,500 to 2,500 feet, dropping to 500 feet when radar contact was made, and maintaining a range of one mile.

The 156 Liberator IIIs were assigned RAF serial numbers BZ833 through BZ860; BZ890 through BZ909; BZ922 through BZ929; BZ932 through BZ936; BZ946 through BZ959; FK214 through FK245; FL906 through FL926; FL928 through FL936; FL939, FL940, FL943, FL945, FL992 through FL995; and LV336 through LV346.

The British acquired 366 B-24Ds, designating them Liberator Mk. III. The nearest two aircraft in this line at Aldergrove, Northern Ireland, in April 1943 are Liberator GR Mk. III serial numbers FK228 and FL933 of No. 120 Squadron, RAF, equipped with ASV Mk. II anti-submarine radar. "GR" designated aircraft modified for Coastal Command.

An armorer cleans the tail guns of a Liberator Mk. III of No 120 Squadron at RAF Aldergrove, near Belfast in Northern Ireland, in April 1943. The RAF modified these planes with Browning .303-caliber machine guns, except for two .50-caliber machine guns in the top turret. The original tail turrets usually were replaced by Boulton Paul turrets with four machine guns.

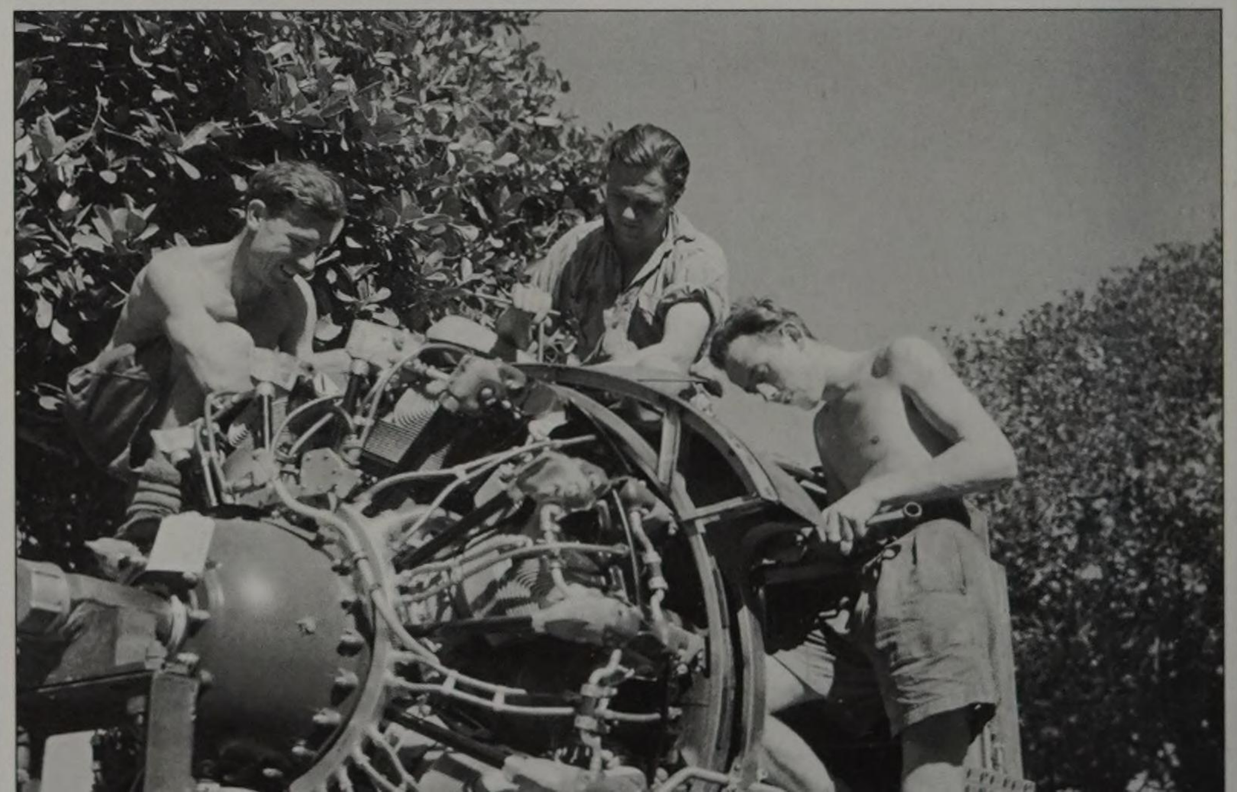
Displaying white-camouflaged sides and undersides for its antisubmarine role, this Liberator GR Mk. III, serial number FK222, was undergoing modifications by Scottish Aviation Ltd. at Prestwick when photographed in August 1942. This aircraft would serve successively with Nos. 120 and 86 Squadrons, RAF, and No.1332 Conversion Unit.

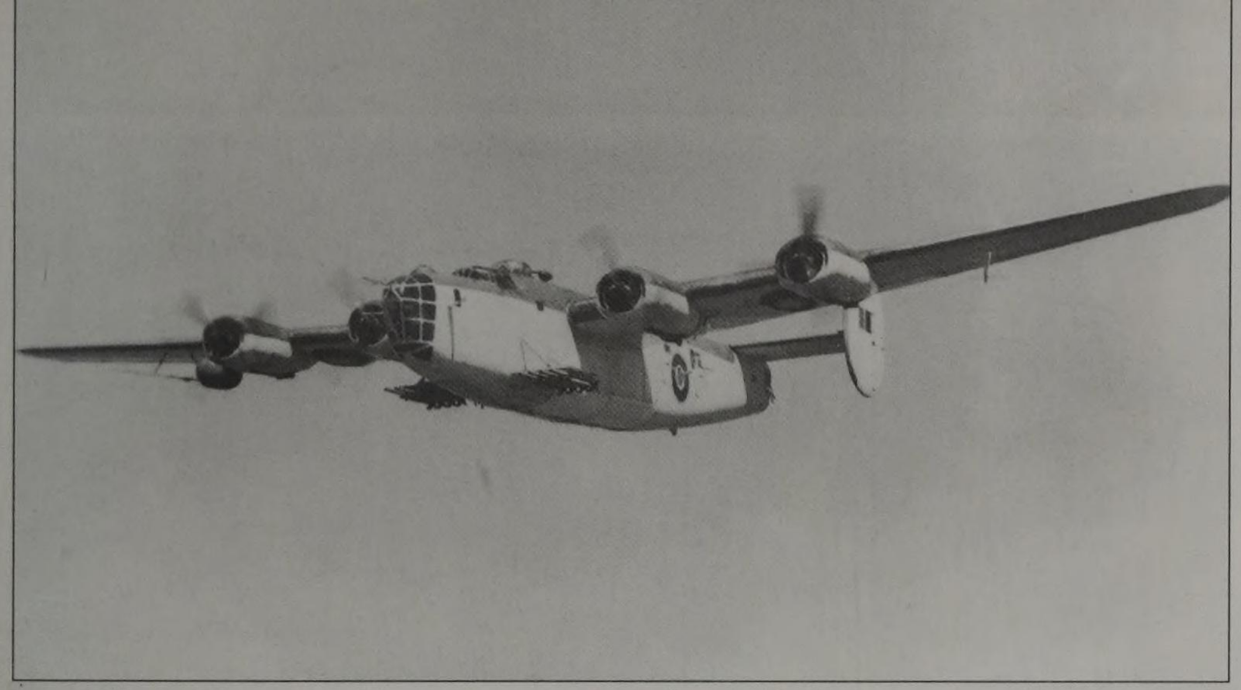
On a blustery December day in 1942, personnel conduct a daily inspection of a Liberator Mk. III of No. 224 Squadron at RAF Station Beaulieu, Hampshire, England. The man on the ladder to the right is checking the starboard pitot tube, while other crewmen inspect the engines and accessories. This squadron departed from Beaulieu in April 1943.

The Liberator GR Mk. V was a Liberator Mk. III equipped with air-to-surface-vessel (ASV) radar mounted in a chin blister or in a retractable radome in the fuselage belly. These aircraft served exclusively with RAF Coastal Command. This example, BZ877, of No. 86 Squadron, RAF, was based at Ballykelly, Northern Ireland, in late 1943.

B-24Ds transferred to the RAF with their original .50-caliber machine guns were designated Liberator Mk. IIIA. In April 1943, this Liberator, GR Mk. IIIA, serial number LV345, rests at Aldergrove, County Antrim, Northern Ireland, at the end of its tour with No. 86 Squadron, RAF, before joining No. 1 (Coastal) Operational Training Unit.

Royal Air Force mechanics perform maintenance on a Pratt & Whitney Twin Wasp engine resting on a stand. Each of the four 14-cylinder radial engines was designed as an easily removable assembly, comprising the engine, engine mount, cowling, and accessories. Each engine was attached to the wing with eight flexible mountings.





Some RAF antisubmarine Liberator Mk. IIIs were fitted with stub wings on either side of the fuselage, for mounting 3-inch high-velocity aircraft rockets (HVARs), a highly effective weapon against German submarines. On the nose and under the wings are ASV radar antennas, and a Leigh Light pod, introduced in 1944, is under the starboard wing. (National Museum of the United States Air Force)

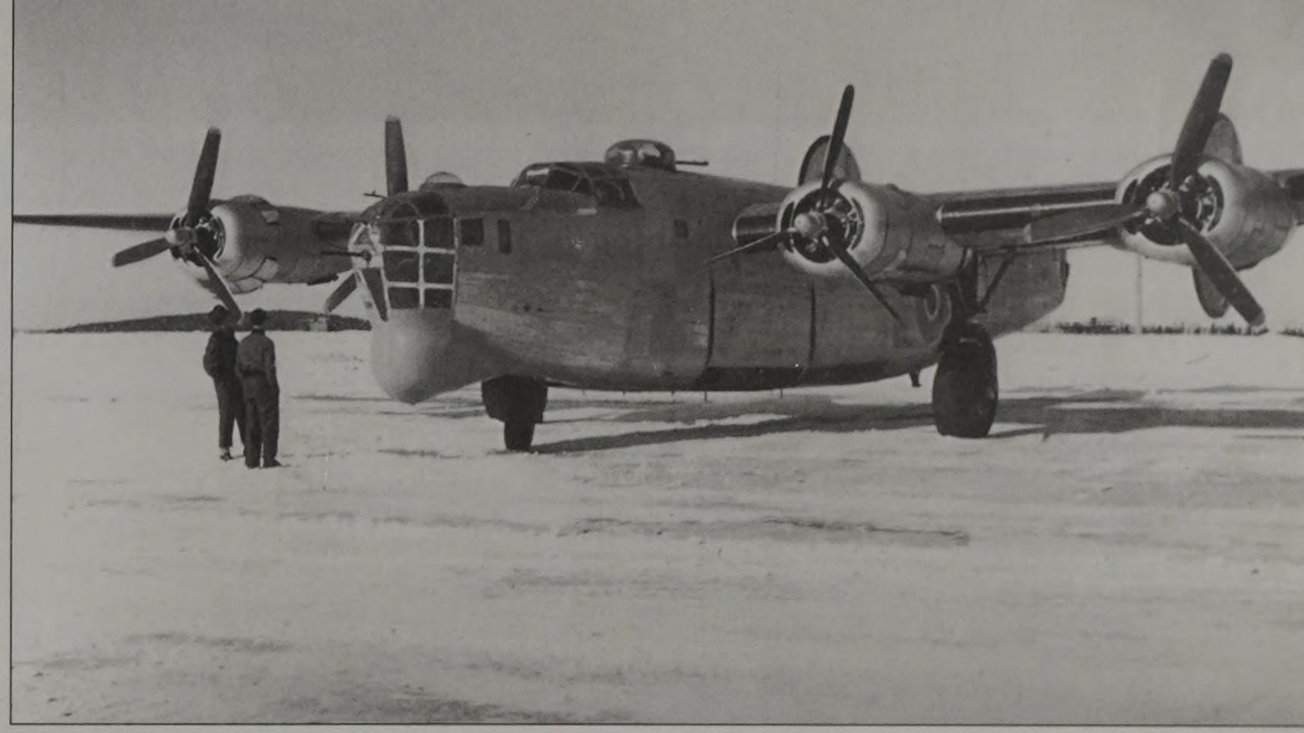
The port stub wing with its diagonal braces on an RAF Liberator Mk. III is shown close-up. Four 3-inch, fin-stabilized HVARs are mounted to a launching rack beneath the wing. In the background is the open port bomb-bay door. These doors were flexible units made of corrugated sections of Alclad, and to open or cloas, they slid on tracks. (National Museum of the United States Air Force)

An RAF crewman cleans the Plexiglas lens of a Leigh Light mounted in a nacelle under the starboard wing of a Liberator. Producing a beam intensity of up to 90 million candles, the 20-inch-diameter Leigh Light provided Coastal Command Liberator IIIs with a powerful searchlight capable of illuminating enemy vessels and surfaced submarines.

Liberator GR MK. V

The British modified a quantity of the Consolidated B-24Ds supplied to them as Liberator GR Mk. Vs. These were equivalent to a Liberator Mk. III equipped with an air-to-surface-vessel (ASV) radar mounted in a bulbous blister on the chin of the aircraft. In some cases, instead of the chin blister, a retractable radome was installed in the bottom of the fuselage. In addition to the Liberator GR MK. Vs delivered to RAF Coastal Command, 19 examples were sent to the Royal Canadian Air Force. This Liberator GR Mk. V photographed at Gander, Newfoundland, is painted in a camouflage scheme of what appears to be green and gray on the upper surfaces and white on the sides and lower surfaces.

Some of the Liberators delivered to the Royal Air Force wore the standard USAAF camouflage scheme of Olive Drab over Neutral Gray. In the case of this aircraft, the RAF simply applied its red, white, and blue roundel with yellow border to the fuselage and its red, white, and blue recognition flash and serial number to the tail fin. (Stan Piet collection)



The bulky radome on the Liberator GR Mk. V led some RAF wags to nickname this model the "Dumbo." As can be seen in this photograph, the chin radome necessitated redesigning the lower end of the clear bombardier's nose. On this aircraft, the number-four engine's cowl flaps are fully open, and the number-two propeller is feathered. (National Museum of the United States Air Force)

An RAF Coastal Command Liberator GR Mk. V displays the bulbous radome on its chin, with another Coastal Command Liberator visible to the far left. Stenciled on the front of the radome is an aircraft number: the first two digits, 53, are visible. On the side of the aft fuselage, above the tunnel gunner's scanning windows, is the code letter G.

Two Liberator GR Mk. Vs were photographed on a hardstand at Gander, Newfoundland. RCAF Station Gander was important during World War II as a key stop on the transatlantic route for RAF and USAAF ferrying commands, as well as a base for Commonwealth and U.S. antisubmarine operations in the North Atlantic.

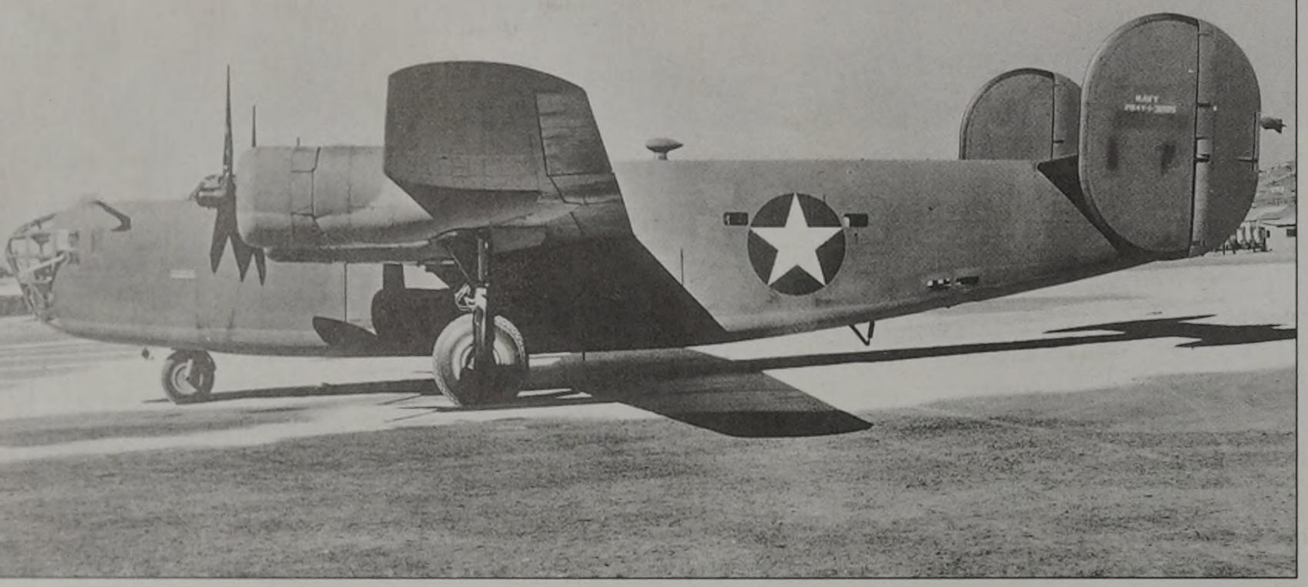
Early PB4Y-1

In 1943, the U.S. Army Air Forces transferred the responsibility of antisubmarine patrolling to the U.S. Navy. To achieve this end, the navy required a long-range, land-based heavy bomber, so, as part of this complex deal, the air force acceded to the navy's acquisition of the Liberator. The first such acquisition was the PB4Y-1, which was virtually a stock version of the B-24D. The navy accepted 977 PB4Y-1s, which had originally been earmarked for the air force. PB4Y-1s represented numerous production blocks and received navy bureau numbers. Shown here is an example of a U.S. Navy PB4Y-1, bureau number 32032, of Bombing Squadron 103 (VPB-103), nicknamed *Calvert & Coke,* in USN antisubmarine camouflage scheme No. 2 of Dark Gull Gray over Insignia White. (National Archives)

Inter-service politics entered the Liberator production plans in mid-1942 when the Navy, which had long been denied authority for land-based bombers, arranged to "trade" a Navy-owned, Boeing-operated plant in Renton, Washington, to the Army Air Force, which badly wanted the plant for B-29 production. In exchange, the Navy got the long-desired rights to operate land-based antisubmarine bombers. Among these aircraft were versions of the Liberator, designated PB4Y-1 by the Navy. The initial PB4Y-1 aircraft were B-24D models of varying blocks, but no matter what block they were drawn from, the PB4Y-1 designation remained the same – in fact, this designation did not change for later models, even when based on B-24G, J, L, or M. Regardless of base Liberator model, all PB4Y-1 aircraft were fitted with Martin A-3 upper turrets and Consolidated rear turrets. All PB4Y-1 aircraft came from orders originally placed by the army, hence all on paper at one time had USAAF serial numbers assigned before having Navy Bureau numbers assigned.

Navy ground crewmen use benches and makeshift scaffolds to perform maintenance on the Pratt & Whitney Twin Wasp engines of a PB4Y-1. Sections of the Alclad cowlings are on the ground to the lower left. Visible under the engine nacelle in the foreground is the turbo-supercharger. Between the engine nacelles is the port main landing gear bay.

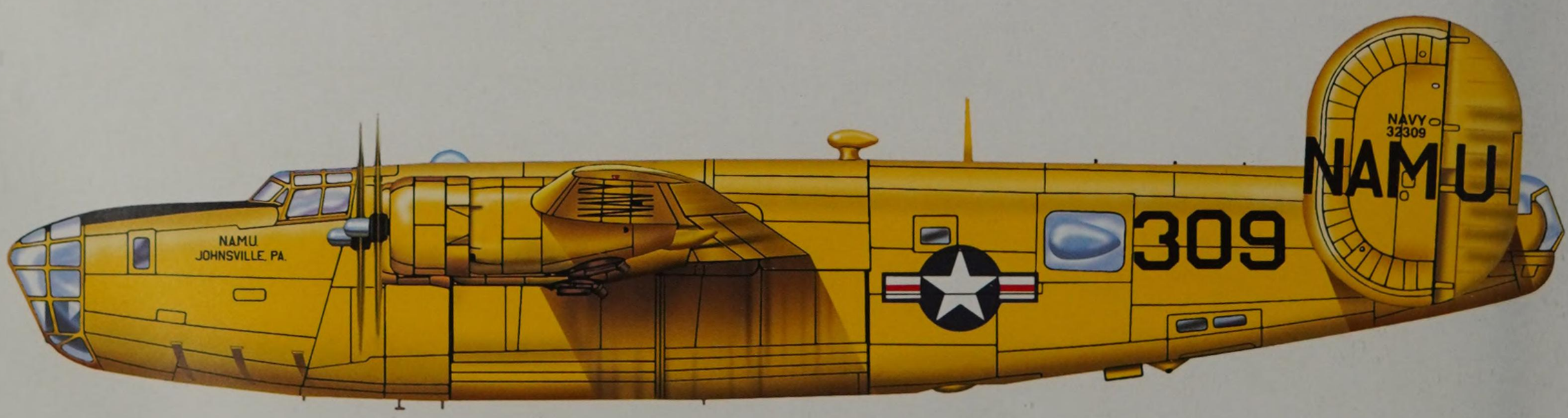
Numerous photographs of *Calvert & Coke* exist. Here, the aircraft is soaring over the British coastline en route to a patrol over the Bay of Biscay, a hotbed of U-boat activity, around mid-1943. Liberators of the U.S. Navy and RAF Coastal Command intensively hunted U-boats outbound or en route to the sub bases on the west coast of France.



Apart from the small USN nomenclature and bureau number stencil on the vertical fin, this early example of a PB4Y-1 could easily pass for a stock USAAF B-24D. The U.S. Navy first began receiving Liberators in September 1942, with 51 PB4Y-1s accepted that year, and total numbers of PB4Y-1s accepted by the navy ultimately reached 977.

The yellow pod hanging below the belly of *Calvert & Coke* is a retractable radome. On the night of 12 November 1943, this Liberator was lost with her entire crew of 10 during an attack on U-508 in the Bay of Biscay. The German U-boat was also lost with all hands in the duel, but the details of the incident remain sketchy to this day.

This veteran PB4Y-1 soldiered on after the war serving with the Naval Modification Unit in Johnsville, Pennsylvania. There it served as a carrier for the Loon and KDN-1 missiles.



C-87

Although the British had used the Liberator as a transport by early 1941, the U.S. Army Air Forces took a bit longer to realize the potential of the B-24 as a passenger transport aircraft. In 1942 a team converted a damaged B-24D-53-CO into a passenger plane with a sheet-metal nose, 25 seats on a floor, rectangular passengers' windows, and a six-by-six-foot cargo door. The army evaluated this aircraft and decided to order production of a transport plane based on the B-24: the C-87 Liberator Express. All of the 287 C-87s were constructed at Consolidated's Fort Worth, Texas, plant, with deliveries occurring between September 2, 1942 and August 10, 1944. The first plane in this line of newly minted aircraft is C-87 serial number 41-11674. (Library of Congress)

Some Liberators were built specifically to be transport aircraft. Dubbed the Liberator Express, 287 of these aircraft, which bore the official nomenclature of C-87, were produced by Consolidated's Fort Worth facility. The genesis of this aircraft was two-fold. First, at the time ((1942) the US lacked a long-range, high-altitude, heavy-lift transport. Secondly, B-24D serial 42-40355 had been heavily damaged in a landing. This aircraft was rebuilt into a transport, devoid of armament and with the hinged sheet metal cargo door replacing the bombardier's normal glassed-in position. A second, larger, cargo door was added aft of the wing on the left side of the fuselage, and seating for 25 passengers was added. Following evaluation of this aircraft at Bolling Field, the Army placed an order for similar aircraft, which were designated C-87 Liberator Express.

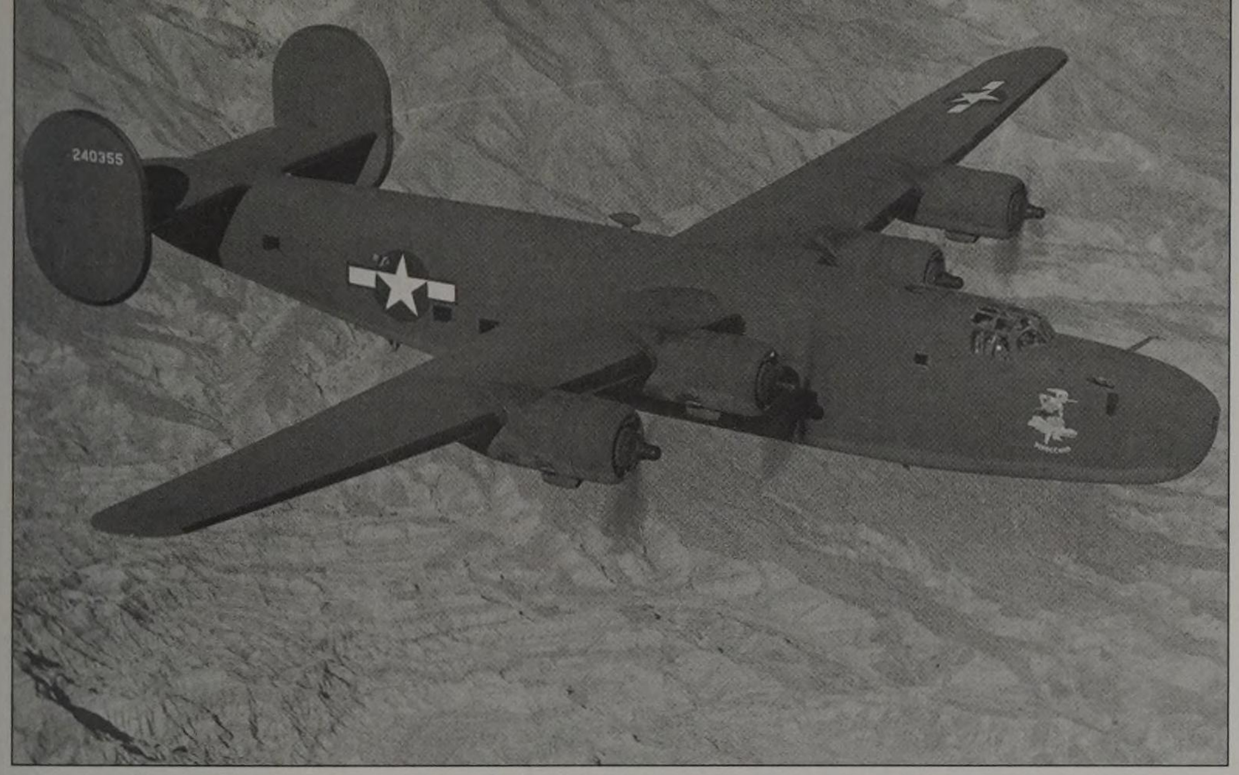
Based on the B-24D design, all of the production transports were built at Consolidated's Fort Worth facility between 2 September 1942 and 10 August 1944. So pressing was the need for these transports that the first 73 were converted from B-24D bombers.

In addition to the Air Transport Command, commercial operators were also contracted to fly the Liberator Expresses. Consairways, Consolidated's subsidiary, operated some of these aircraft in the Pacific. American Airlines flew the C-87 on North and South Atlantic routes and United Air Lines flew them on trans-Pacific as well as Australia and New Zealand intra-theater routes. Transcontinental and Western Airlines – later known as TWA – operated the C-87 on South Atlantic routes. The C-87 was not well liked, and its performance as a cargo aircraft was lacking, hence as the Douglas C-54 became available the C-87s were quickly retired.

A C-87 is under construction at Consolidated's Fort Worth factory. On the side of the fuselage is the metal framing for the 6-foot-square cargo door, with the Alclad skin yet to be applied around the door opening. There was no tail turret on the C-87: instead, the area was faired over with aluminum. Lifting slings are secured around the fuselage. (Stan Piet collection)

In the Fort Worth plant, workers perform final touches on the inside of the nose of a C-87. The aluminum nose assembly is lying on the crate in the foreground. Although cheek windows were not installed, the horizontal masts for the pitot tubes are present in that area. The large work scaffolds were a hallmark of Liberator assembly lines. (Stan Piet collection)

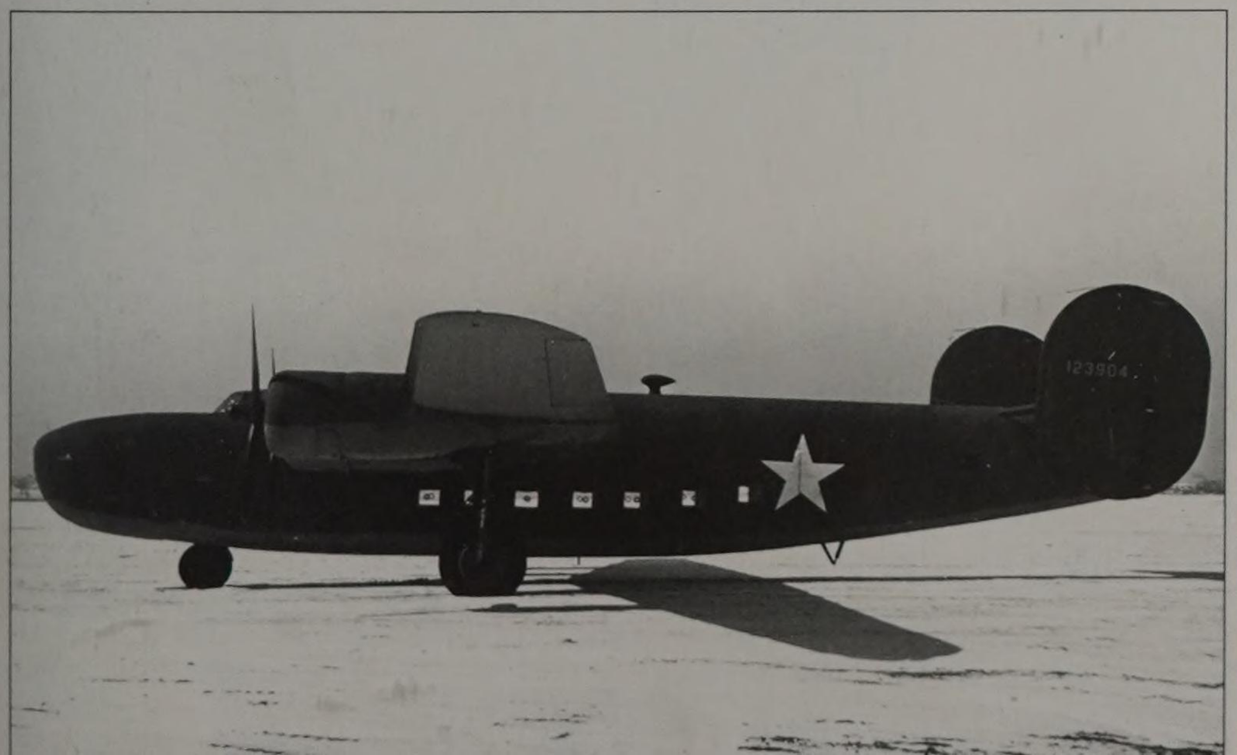
From head-on, the C-87 bore a very close resemblance to the B-24D, making allowances for the absence of a clear bombardier's nose and top turret. The astrodome was moved from above the nose to the top of the fuselage just aft of the cockpit canopy. As on the B-24D, power was provided by four Pratt & Whitney R-1830-43 engines. (Stan Piet collection)



Pinocchio was the damaged B-24D-53-CO, 42-40355, that was transformed from a bomber to a transport, serving as the prototype of the C-87. The modification work was performed at Consolidated's San Diego plant and supervised by the designer of the B-24 Liberator, I. M. Laddon. Work was performed impromptu, without reference to drawings. (National Museum of the United States Air Force)

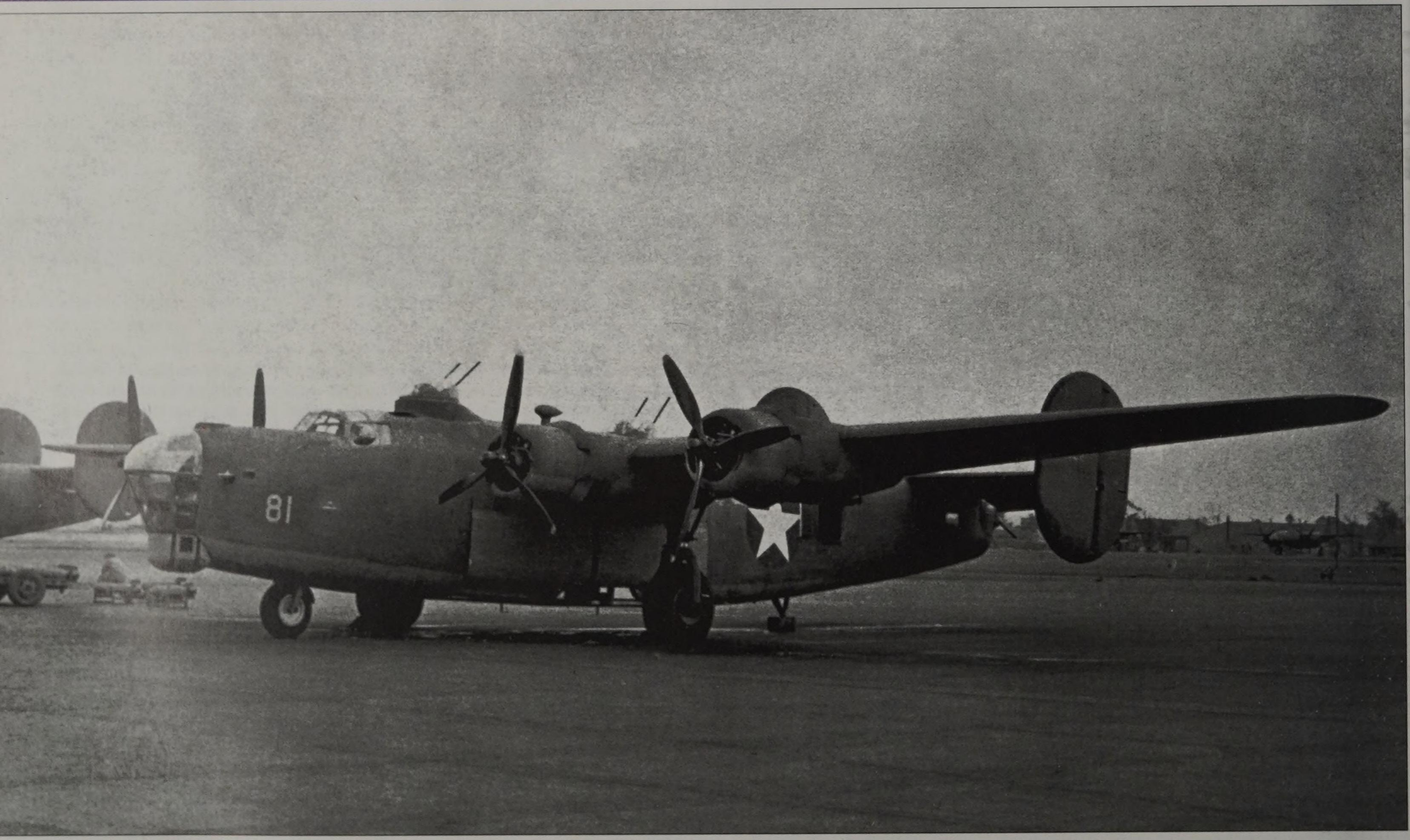
This Liberator Express, serial number 41-23904, had a rectangular window in its nose fairing/door: a feature found on some C-87s. This door was hinged on the starboard side, allowing access inside the nose. From this angle, it is apparent how the seven passengers' windows curved up toward the rear, to conform with the contour of the belly.

C-87 serial number 41-23904 is viewed from the port side. Its tail skid is lowered, and on top of the fuselage is a radio direction-finder antenna in a "football" fairing. Each of the passenger's windows had a circular vent in the center. The cargo doors on the port side of the fuselage are barely discernable, with the front edge at the center of the U.S. insignia.

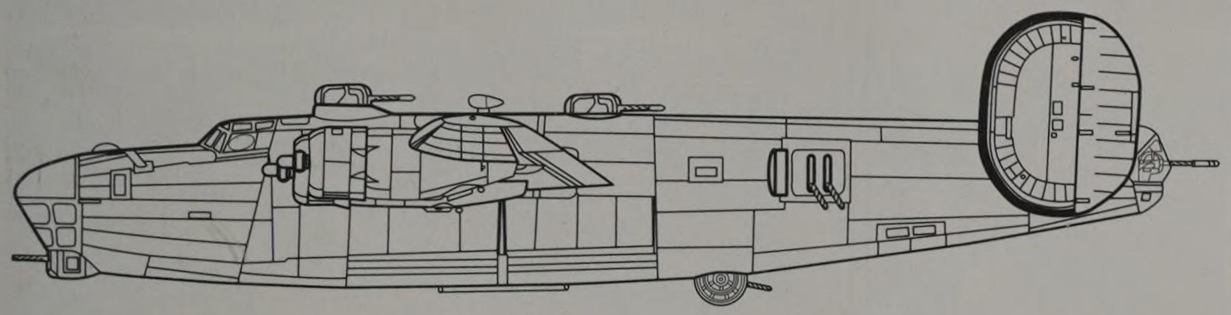


Consolidated C-87 Liberator Express 41-23904, viewed from the port aft quarter, shows the blunt fairing in place of the tail turret. Most C-87s were delivered to Air Transport Command and became participants in flying "the Hump," the critical air-supply routes to China over the Himalayas. Some C-87s were contracted to four civil airlines: American Airlines, Consairways, United Airlines, and Transcontinental & Western Airlines.

XB-41



To make up for a lack of long-range escort fighters in early 1943, the USAAF experimented with the concept of modifying existing heavy bombers with extra armor and armaments, to serve as escorts on bombing missions to the Continent. For this purpose, B-24D-CO serial number 41-11822 was converted at Fort Worth to the sole XB-41. Its Martin top turret could be raised when in use, and a second Martin top turret was added to the midsection. A Bendix chin turret was installed below a modified clear nose. Power-assisted twin .50-caliber machine guns were emplaced at the waist windows, and extra storage for ammunition was provided. Tests at Eglin Field disclosed numerous problems with the XB-41's stability, maneuverability, and armaments. Before the XB-41 could proceed from the experimental stage, combat tests of a similarly modified B-17, the YB-40, proved the heavy-escort aircraft concept was faulty, and the XB-41 was discontinued in October 1943. (National Museum of the United States Air Force)

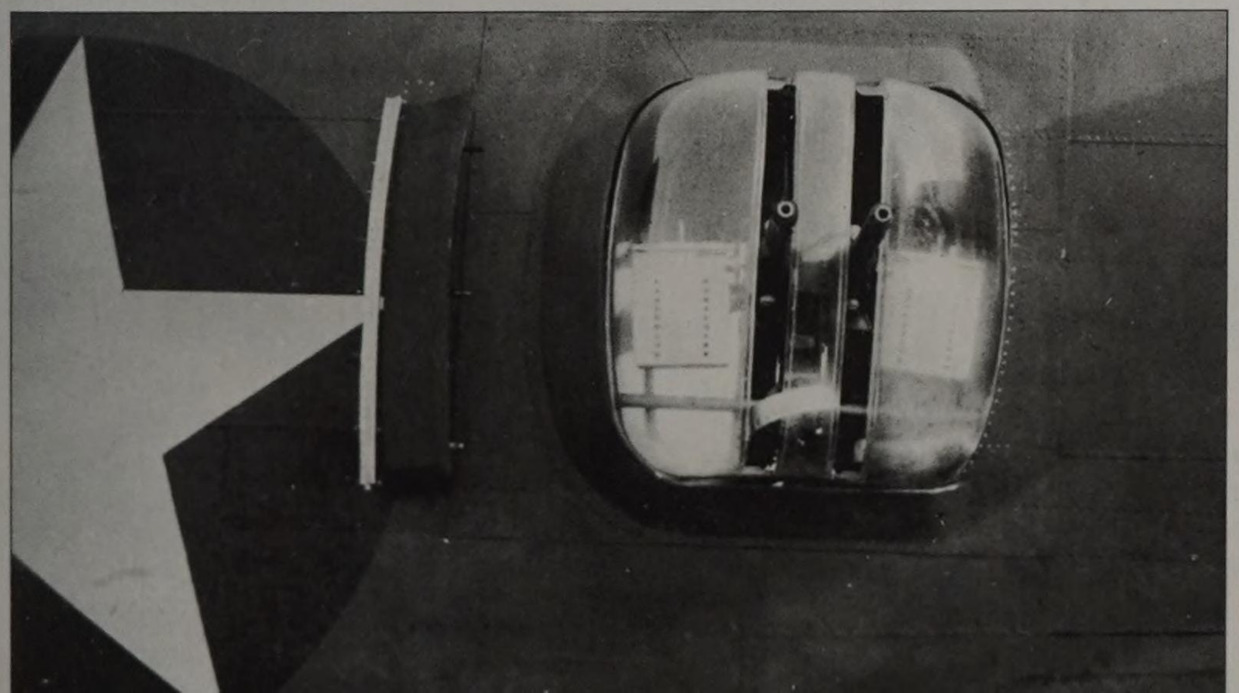


As the daylight bombing effort in Europe increased, so did the losses of US Army Air Force bombers. No Allied fighter in 1942 had a range equal to that of the heavy bombers, so the Army Air Force experimented with fitting out some bombers as 'gunships' to protect their colleagues on long flights over enemy territory. Liberator 41-11822, a B-24D, was selected for conversion to the XB-41 gunship model. Armament was increased by mounting an additional upper turret to the aircraft, and using pairs of .50 caliber machine guns in the waist gun position. A Bendix chin turret was installed beneath the nose. All told, the XB-41 bristled with 14 machine guns, fed with 11,000 rounds of ammunition.In flight tests, the heavily laden, aerodynamically unclean XB-41 struggled to gain altitude, and suffered from engine overheating.

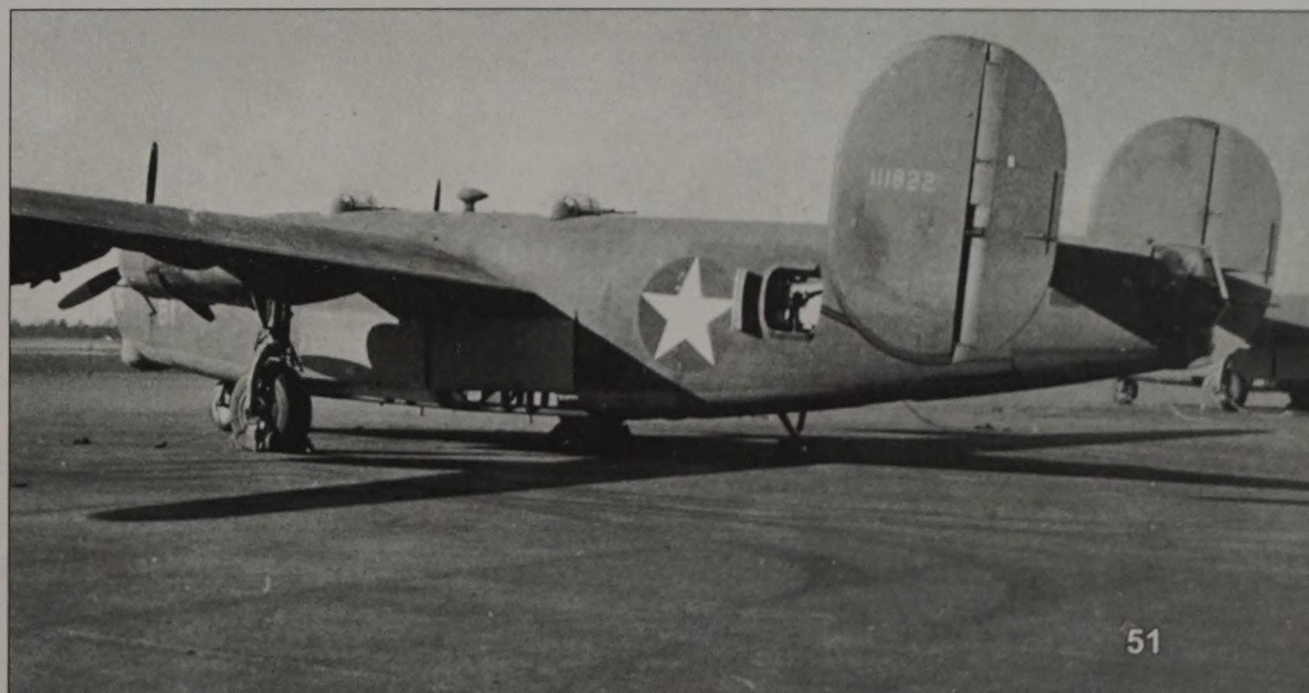
Concurrently, field trials of a similarly modified Flying Fortress, the YB-40, had shown that the slow gunships actually hindered the formations they were supposed to be protecting, because once the bombers had released their loads, they could hurry away from enemy territory, whereas the gunships were still heavily laden with ammunition, and could not attain the same speeds. Thus, the formations had to slow down so the gunships could keep up, increasing the amount of time spent over FlaK batteries and outside the range of Allied fighters. Accordingly, work on the XB-41 ceased in 1943 with only a single experimental model having been converted.

The XB-41's Bendix chin turret is turned to the port side. The clear nose was redesigned to provide the chin gunner with better visibility.

The Plexiglas blister is shown in place on the port waist gun mount of XB-41. To the left is an air deflector.



The extra top turret on the XB-41 is visible. A Plexiglas blister originally fitted to the port waist guns was removed because it distorted the gunner's view.



F-7

The F-7A was a conversion of the B-24 to a long-range photo-reconnaissance aircraft. The first of these conversions was made in January 1943 when personnel at Lowry Air Base modified B-24D 41-11653 by removing all bombing equipment and mounting eleven cameras in the nose, aft fuselage and bomb bay. Following this, four additional B-24D conversions were performed by the Northwest Modification Center, St. Paul, Minnesota.

Subsequently, additional reconnaissance aircraft, dubbed F-7A, were created by converting 89 B-24J aircraft. The F-7A featured a trimetrogon camera suite in the lower nose, which used three cameras to produce horizon-to-horizon images for mapping applications. The aft bomb bay was sealed shut and a compartment created for the camera technician.

A further 35 B-24J aircraft, along with four B-24L and 70 B-24M bombers, were converted to F-7B variants. These differed from their predecessors in having all of the cameras mounted in the aft bomb bay, with none in the nose, where they had interfered with the navigator. The series production of the reconnaissance versions were undertaken not on the aircraft assembly lines proper, but rather at Air Technical Service Command modification centers including Martin-Omaha, Nebraska, and Consolidated in Tuscon, Arizona.

The F-7s were assigned to specific photo reconnassnce units, notably the 1st Photographic Group, 4th Photographic Group, 5th Photographic Group, 6th Photographic Group, 11th Photographic Group, and the 311th Reconnaissance Wing.

The F-7, the long-range photo-reconnaissance version of the B-24D, was first produced as a conversion of B-24D 41-11653 and mounted eleven cameras in the nose, bomb bay, and aft fuselage. Subsequent conversions of F-7s occurred at several modification centers. *Hi Doc,* 41-11598, reportedly served with the 1st Photographic Group. (National Museum of the United States Air Force)

The F-7 nicknamed *Hi Doc* also repeated its Bugs Bunny nose art on the port side of the fuselage. A crewman has found that the pitot-tube mast and a propeller made an excellent anchor for a clothes line, and that the pitot tube and the lower nose machine gun could substitute for drying racks. Below the towel to the left is a camera window. (National Museum of the United States Air Force)

***Ol' Nick,* F-7 serial number 41-11673, served with the 1st Photographic Group, 1st Photographic Squadron. The nose art, which was repeated on the port side of the fuselage, was a picture of the devil inside a circle, with a light-colored trident situated diagonally through the *Old Nick* script. A small letter Z is below the pitot tube. (National Museum of the United States Air Force)**

B-24E

Production of B-24s was spread among several manufacturers and plants under the Liberator Production Pool arrangement. Beginning with the B-24E, Ford Motor Company's Willow Run, Michigan, factory became a major supplier of Liberators, both assembled aircraft and knockdown (KD) kits, which were major subassemblies delivered to other plants for final assembly. The B-24E was virtually the same aircraft as the Consolidated B-24D, with some changes, including the adoption of Pratt & Whitney R-1830-65 engines. Ford constructed 490 B-24Es at Willow Run, while Douglas Aircraft at Tulsa completed 167 from KD kits, and Consolidated Fort Worth assembled 144 from KDs. In this photo of Consolidated's Fort Worth assembly line, the first and third aircraft in the right-hand line are B-24E-25-CFs 41-29074 and 41-29075, while the second Liberator is a B-24D-10-CF. To the left are B-24Ds in antisubmarine camouflage, including at least one bearing the tail number of a Consolidated San Diego B-24D-105-CO. (National Museum of the United States Air Force)

Though the B-24D was the first Liberator to be mass-produced, the B-24E would begin to redefine what was meant by the term 'mass production,' despite only 801 being built. The reason for this boils down simply to Ford Willow Run. In 1941 Ford was contracted to provide B-24 components to Douglas in Tulsa and Consolidated in Fort Worth. To achieve this goal, an entirely new factory was constructed in Willow Run, Michigan, outside of Detroit. The huge facility was a quarter-mile wide and a half-mile long, and situated on a 65-acre site. Ford engineers, intimately familiar with mass-production, went to San Diego to learn the peculiarities of aircraft manufacture, and the specifics of the Liberator.

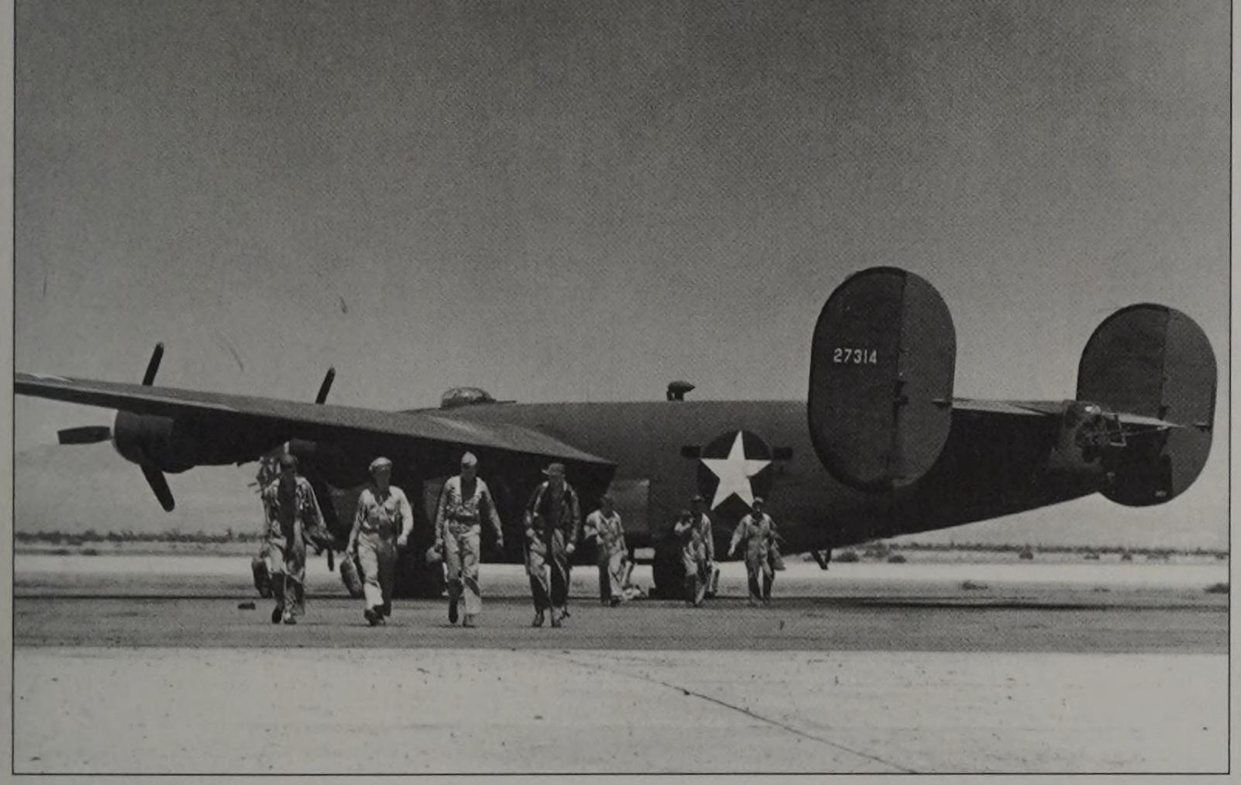
In October 1941 the contract was modified, and not only would Ford provide components for the other two plants, but the Willow Run plant would turn out complete aircraft as well. The first Ford-built Liberator, a B-24E, rolled out the doors of Willow Run in September 1942. Components, including virtually complete fuselages, were transported in specially built tractor-trailers from Willow Run to other plants in the Liberator Production Pool. Apart from its lack of a belly turrent, the outward appearance of the B-24E closely resembled that of the B-24D. But the B-24E also incorporated some hidden design changes that facilitated higher rates of production.

Ultimately, Ford Liberator output would reach staggering levels, but the ititial stages of production were plagued by numerous delays. The slow start meant that by the time the B-24Es began to pour off the assembly lines in Willow Run, Tulsa, and Fort Worth, they were largely obsolete. Accordingly, they were used primarily for stateside training, with 100 of the type being modified to train B-29 gunners through the installation of GE gunfire control systems.

Singer-actress Jeanette MacDonald inscribes a newly minted B-24E. The left cheek machine gun mount is a variation in which the socket was installed directly through the skin of the fuselage below the sighting window, characteristic of the B-24E. Visible inside the clear bombardier's nose are two other .50-caliber machine guns on their Bell adapters. The barrel sleeves have a protective wrapping. (From the Collections of The Henry Ford)

Just off the assembly line, Willow Run-produced B-24E-5-FO serial number 42-7020 is marked only with its national insignia, tail number, and a placard on the cheek bearing the last four digits of its tail number and "44." B-24Es lacked the Sperry ball turret, having instead the tunnel gun with a hand-operated .50-caliber machine gun.

This view of ground crewmen at work on the starboard Fowler flap and the engines of a Liberator reveals the structure of the framing of the engine cowls and nacelles. What is visible of the tail number indicates that this probably was a B-24E-CF. The air tank on the compressor below the wing is stenciled "347th Sub-Depot." (Stan Piet collection)



The flight crew walks away from their B-24E-25-FO, serial number 42-7314, at an unidentified air base. Faintly visible between the top turret and the RDF antenna are three whip antennas. The fabric skin of the rudders show up as lighter in tone than the Alclad skin of the vertical fins, and rippling is visible on the skin of the lower fuselage. (National Museum of the United States Air Force)

This B-24E-25-FO, serial number 42-7341, apparently was a war-weary Liberator, perhaps photographed while in postwar storage. The national insignia on the fuselage, of the type with side bars, has been painted out, and the only markings remaining are the tail number. Faintly visible on the nose are the vestiges of the aircraft number, 341. (National Museum of the United States Air Force)

Three Liberators, including B-24E-5-FO 42-7054 in the foreground, skip over a river valley. The planes' individual aircraft numbers on the fronts of the fuselages are the last two digits of their serial numbers. By the time B-24Es started being delivered in mid-1943, they were obsolescent, and most of them were used for training Stateside. (National Museum of the United States Air Force)

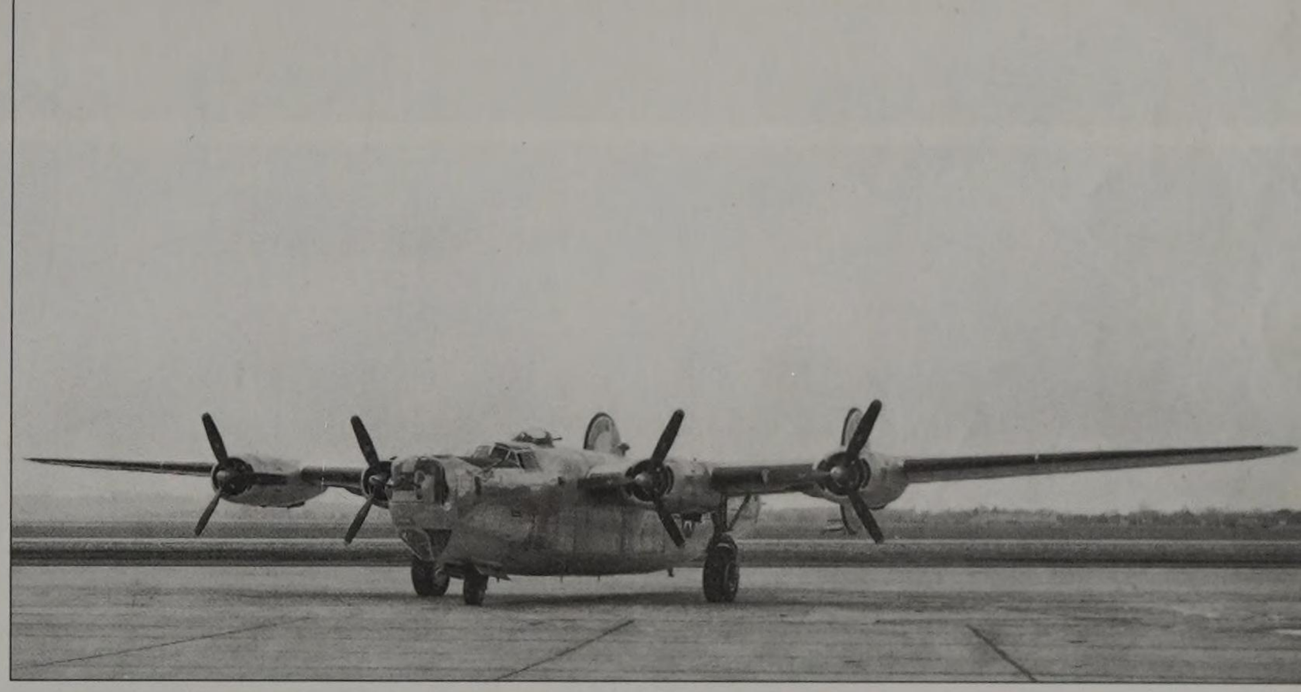
In addition to a modified nose with turret, B-24E-15-FO 42-7127 had experimental twin-.50-caliber machine gun barbettes on the lower half of each side of the fuselage, just aft of the bomb bays. Gunners remotely controlled these guns from stations aft of the mounts, using clear blisters for sighting. These mounts were not approved for production. (W.T. Larkins via Piet Collection)

B-24G

North American Aviation produced a version of the B-24D at its Dallas, Texas, plant, under the designation B-24G. The first example, a B-24G-NT, was completed in March 1943, and this first production block of 25 aircraft had the clear bombardier's nose and no ventral weapons. In early November 1943, the next production block, the B-24G-1-NT, introduced a revamped nose with a turret. The B-24G-10-NT production block featured a major improvement: the installation of the Sperry ball turret. Total production of the B-24G was 430, with most of them serving in the Mediterranean Theater. Flying in the foreground in this photo is one of the last of the G-series Liberators, B-24G-16-NT serial number 42-78463, of the 451st Bomb Group, 725th Bomb Squadron. The red upper half of the vertical tail signified the 49th Bomb Wing, while the red circle on the tail represented the 451st Bomb Group. (National Archives)

Initially the B-24G was essentially a B-24D produced by North American, the fourth firm to join the Liberator Production Pool. North American assembled these aircraft in Dallas, the fifth facility devoted to Liberator production. The idea was that the model number letter suffix would designate component manufacturer – B-24D from Consolidated, San Diego; B-24E from Ford, Willow Run; and B-24G from North American, Dallas. All three were to be externally similar, although only the Consolidated-built aircraft would have ball turrets.

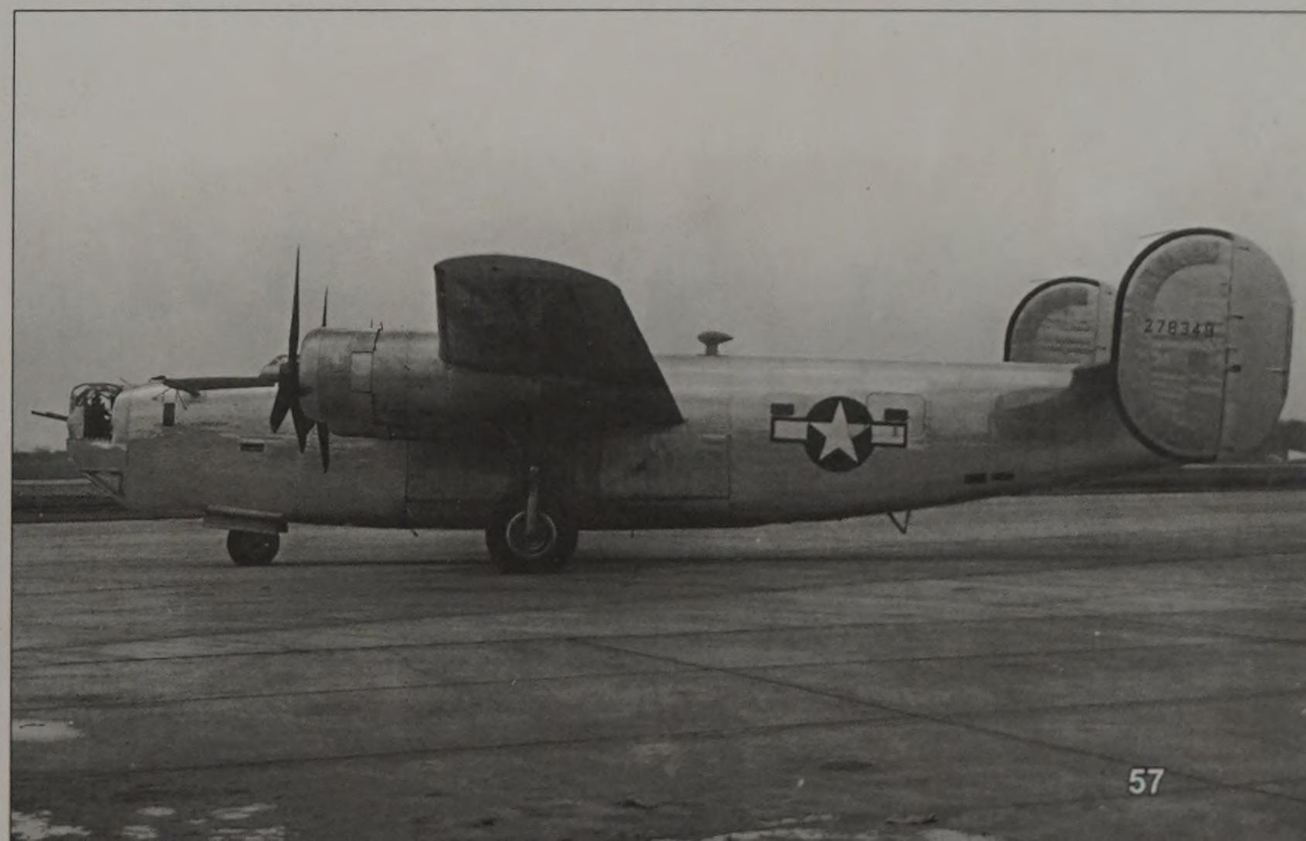
After producing the 25th B-24G, however, North American began installing Emerson power-operated nose turrets in a manner similar to that used by Ford on the B-24H. Rather than initiate another new model number for the North American-produced, nose-turret equipped Liberator, instead a new production block was designated – B-24G-1-NT – thereby segregating the earlier, glass nosed B-24-NT. Further changes were introduced beginning with B-24G-10-NT, which also featured a ball turret. Notably, up to this point the nose-gear doors on B-24Gs opened upward into the wheel well, but beginning with the B-24G-10-NT the nose-gear doors opened outward in a conventional manner. At the same time the Pratt & Whitney R-1830-43 engines were replaced with Buick's more powerful R-1830-65 Twin Wasp engines. A total of 430 B-24G aircraft had been produced by the time they were replaced on the North American Dallas assembly line by the B-24J in June 1944. The B-24G was most notably used by the Fifteenth Air Force operating in the Mediterranean Theater.

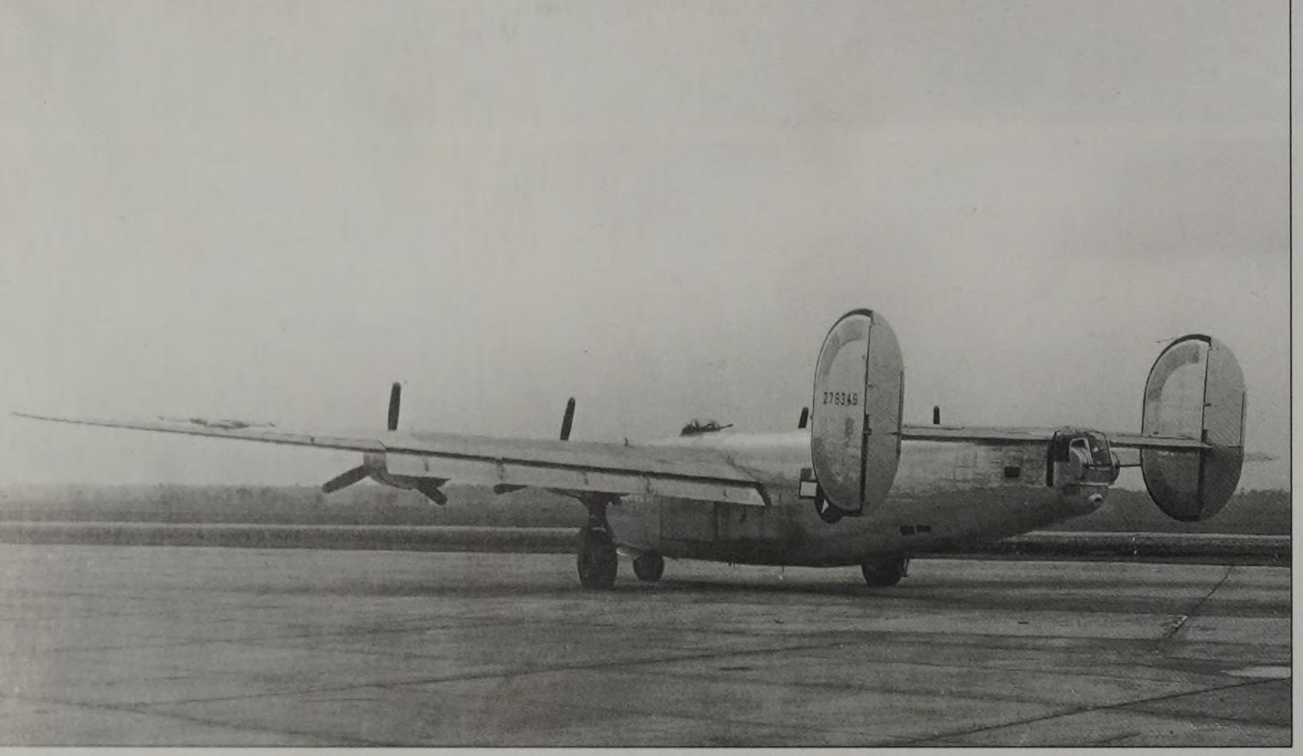


Once the B-24G had acquired a nose turret and ball turret, the aircraft became hard to distinguish from the B-24H. As seen on this B-24G-15-NT, the nose turret was the electrically powered Emerson A-13. The outward opening nose landing gear doors were introduced with the B-24G-10-NT; earlier production blocks had inward-opening doors. (National Museum of the United States Air Force)

The .50-caliber machine guns of B-24G's Emerson nose turret are being test-fired. For accuracy of firing, it was necessarily to boresight the guns periodically, to make sure they were firing in coordination with the gun sight, and to harmonize the guns, to ensure that the streams of fire from the two guns were converging at a predetermined range. (National Museum of the United States Air Force)

B-24G-15-NT serial number 42-78349 displays the arrangement of the port side of a late-G-model Liberator. Although a retractable Sperry ball turret had been installed, two small scanning windows for the discontinued tunnel gun were present aft of the retractable tail skid. Several thin braces had been added to the pitot-tube mast above the cheek window. (National Museum of the United States Air Force)





As viewed from the aft port quarter, B-24G-15-NT 42-78349 displays its MPC A-6B tail turret, which had symmetrical guns, a slightly curved sighting window, and Plexiglas side panels that extended farther downward than on the A-6 turret, yielding better sideward visibility. The A-6B turret replaced the A-6A with the B-24G-5-NT production block. (National Museum of the United States Air Force)

The Germans captured B-24G-10-NT serial number 42-78247 of the 461st Bomb Group, 765th Bomb Squadron, Fifteenth Air Force, after it lost an engine on a bombing mission on 4 October 1944 and landed at Penzing, Germany. The Luftwaffe repaired the aircraft, and it served as a radar and electronics test ship for the Aviation Radio Research Institute. (Hans-Heiri Stapfer)

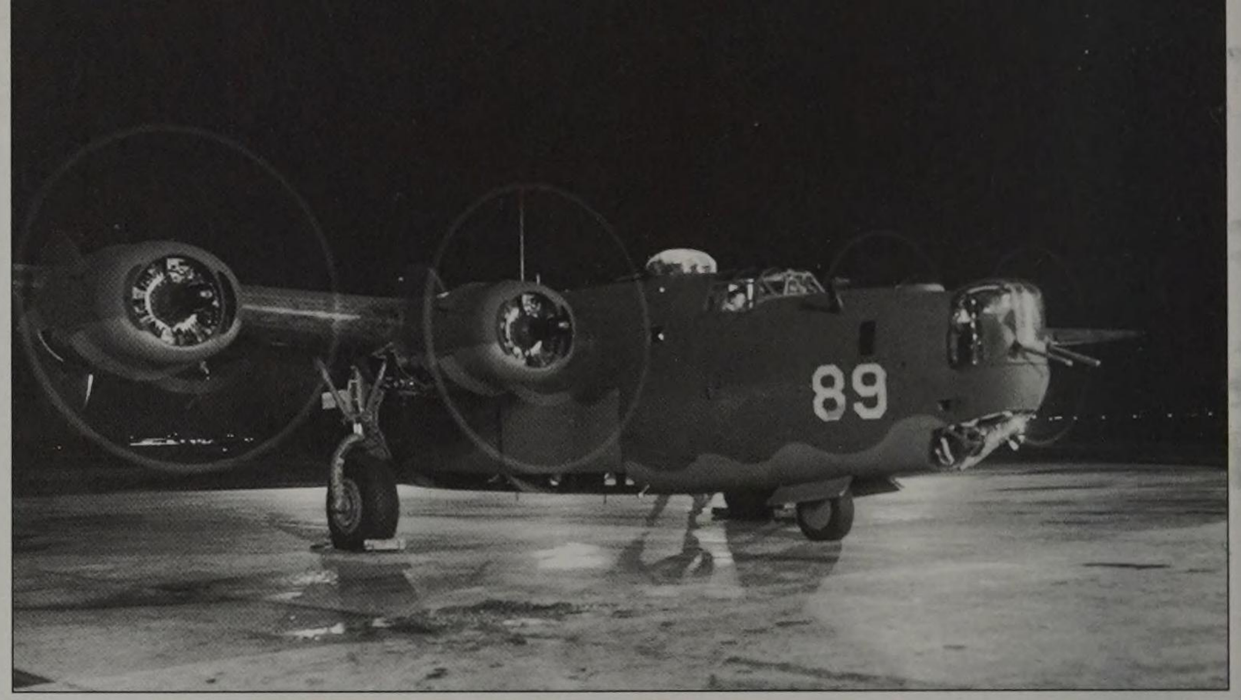
Fertill Myrtle, a B-24G (42-78471) of the 724th Bomb Squadron, 451st Bomb Group during an attack on the oil refinery at Almásfüzitő, Hungary, in 1944.

B-24H

Ford's Willow Run plant delivered the first B-24H on 30 June 1943, signaling a significant leap forward in the evolution of the Liberator. The B-24H was the first Liberator to have a nose turret installed on the production line; this was the electrically operated Emerson Type A-15. The redesigned bombardier's chin on the B-24H lacked the droop of the earlier Oklahoma City nose modification. The H-model B-24 included 56 major design revisions over the B-24D, including outward-opening nose landing gear doors and addition of the MPC A6-B tail turret. During its subsequent development, the B-24H would receive the Martin A-3D "high hat" top turret and enclosed waist machine gun mounts. A total of 3,100 B-24Hs were completed by Ford Willow Run, Consolidated Fort Worth, and Douglas Tulsa. This B-24H-15-FO, nicknamed *Leo,* was produced by Ford Willow Run and was photographed while serving with the 493rd Bomb Group, 860th Bomb Squadron, of the Eighth Air Force. Aft of the waist window, the "2S" code for the 834th Bomb Group, to which *Leo* had previously been assigned, has been painted over. (U.S. Air Force Academy, via Kent Ramsey)

Like most bombers of the era, the B-24 was vulnerable to nose-on attacks, and considerable effort was put into improving forward defenses, both by engineers and field personnel. One of the most successful of measures was the field installation of a Consolidated A-6 tail turret in the nose of a B-24D. This in fact was so successful that the Army authorized nose-turret installations in all Pacific-bound Liberators. These turrets were installed at Air Depots, and the resultant aircraft were classified B-24DI. Not surprisingly, immediate efforts were made at similar factory installations. The result was the Ford-built, Emerson A-15 turret-equipped B-24H. The turret installation inherently required the complete redesign of the aircraft nose and bombardier's position.

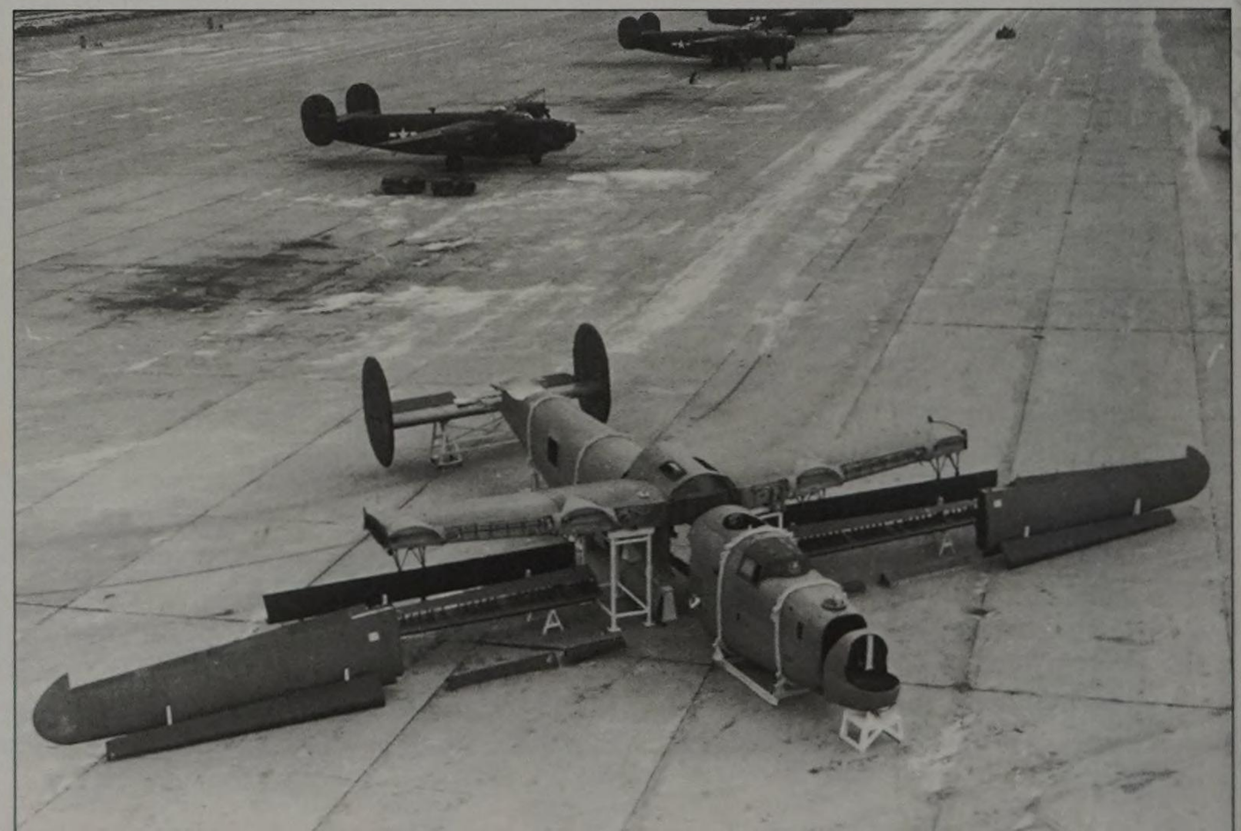
Initially, the top turret used on the B-24H was the Martin A-3C, but later production B-24H bombers utilized the Martin A-3D, which had an enlarged and taller enclosure that considerably improved the gunner's field of vision. Also featuring improved vision was the tail turret used on all B-24H models, which was an improved Consolidated A-6B. Later B-24H models had navigation lights that differed from those on earlier Liberators. Previously, separate lights were mounted on the top and bottom of the wing tips. Now a single lamp was provided at the very end of each wing tip. Two engine models were used during the course of B-24H production. The B-24H-1-CF, B-24H-1-FO and B-24H-DT were each powered by a quartet of R-1830-43 engines, while later blocks of Consolidated and Ford-built B-24Hs used the more powerful R-1830-65 engine. Douglas-assembled B-24Hs used the -43 throughout their production run. In all, 3,100 B-24H models were built, pouring out of the factories at Willow Run, Tulsa and Fort Worth.

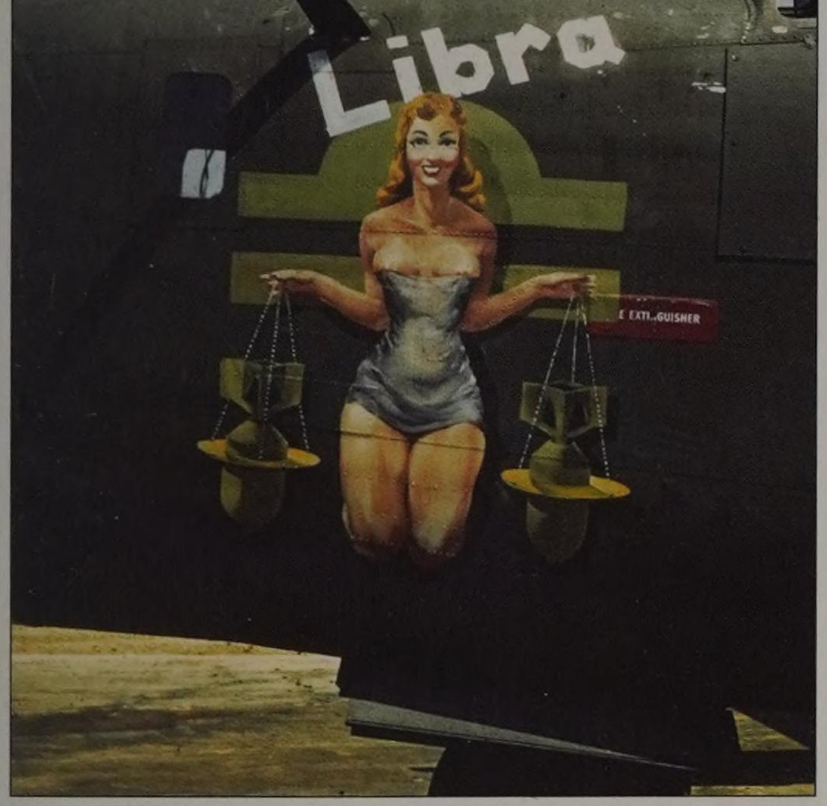


A newly minted B-24H runs-up its engines at the Ford Willow Run plant on 6 December 1943. It displays the diagonal brace on the side of the bombardier's window, characteristic of the -H model, and the Ford-type camouflage with a wavy, sharply defined demarcation between the Olive Drab and Neutral Gray on the fuselage, and a straight line with a curve up to the wing on the nacelles. (From the Collections of The Henry Ford)

Nearly complete B-24H-20-FOs are undergoing final touches on the assembly-line floor at Ford's Willow Run plant. The last two numbers of their serial numbers are painted on their noses. On the Liberator in the foreground, the oblong opening aft of the top turret was the life-raft compartment; there was one on each side of the plane.

It's unclear what model this B-24 knockdown (KD) kit at Willow Run was, but it was likely an -H, as several completed B-24Hs are in the background. Knockdown kits were shipped from that factory to the final-assembly plants by freight cars or, more often, by a fleet of almost 90 trucks with purpose-built 63-foot trailers, two of which could transport two KD kits. (From the Collections of The Henry Ford)



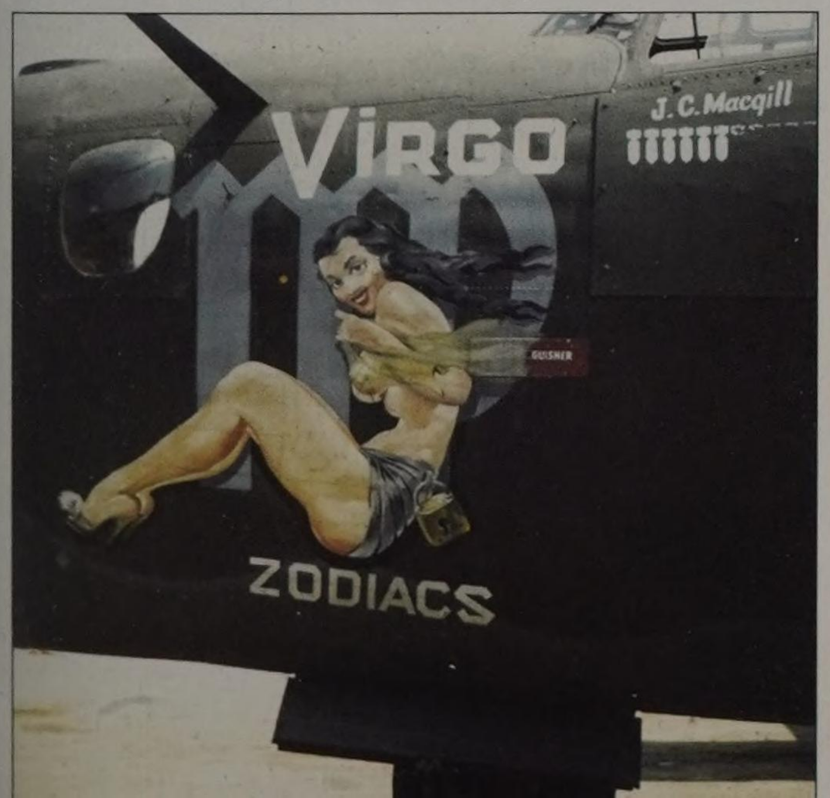


The 834th Bomb Squadron had a dozen Liberators, including *Libra,* decorated with signs of the Zodiac by Phil Brinkman, who before the war was a commercial artist. (U.S. Air Force Academy, via Kent Ramsey)

Cancer was B-24H-15-FO serial number 42-52650 of the 834th Bomb Squadron. This aircraft crashed and burned on 3 January 1945 with the loss of all ten crewmen. (U.S. Air Force Academy, via Kent Ramsey)

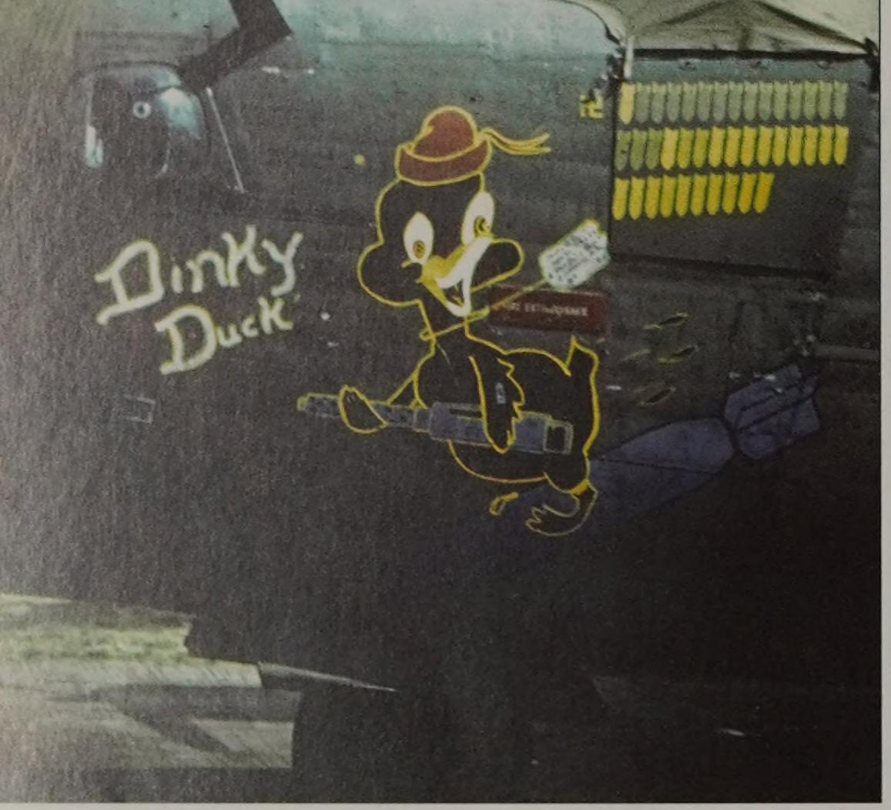
Consolidated Fort Worth-assembled *Gemini* was B-24H-15-CF 41-29490. The angled brace on the side of the bombardier's window was usually found only on B-24Hs. (U.S. Air Force Academy, via Kent Ramsey)

Virgo of the 486th Bomb Group, 834th Bomb Squadron, Eighth Air Force, was piloted by Charles Macgill. The aircraft was B-24H-15-FO serial number 42-52532. (U.S. Air Force Academy, via Kent Ramsey)

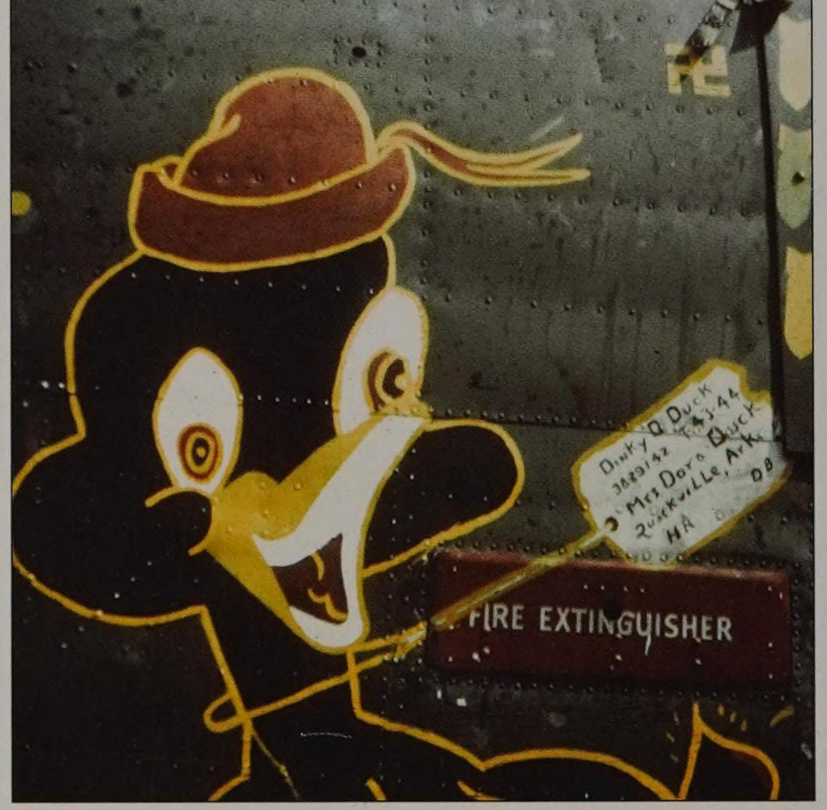


Corporal Phil Brinkman works on the nose art of "Aries" at the 834th Bomb Squadron's base at Sudbury, England. This was a B-24H-15-FO, serial number 42-52693. (Air Force Historical Research Agency)

B-24H-15-FO serial number 42-52594 bore the nickname *Naughty Nan.* This Liberator was with the 446th Bomb Group, 705th Bomb Squadron, of the Eighth Air Force. (Stan Piet collection)



Named after a Terrytoons cartoon character, *Dinky Duck* was B-24H-1-CF serial number 41-29142 of the 446th Bomb Group, 706th Bomb Squadron, Eighth Air Force. (Stan Piet collection)



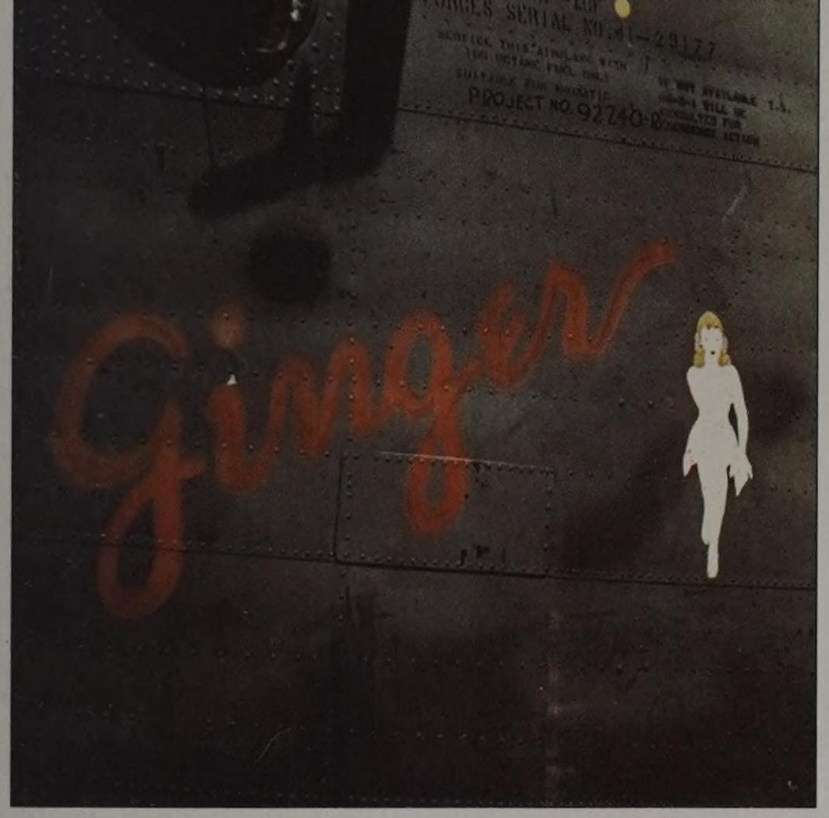
A close-up of *Dinky Duck* shows the red fire extinguisher door, bombs indicating combat missions, and a swastika representing a claimed kill of a German fighter. (Stan Piet collection)

Lady Luck, B-24H-1-CF 41-29128, served with the 446th Bomb Group, 704th Bomb Squadron, in the Eighth Air Force. The plane crashed in Belgium in October 1944. (Stan Piet collection)

Home Breaker was B-24H-15-FO 42-52612 of the 446th Bomb Group, 706th Bomb Squadron, Eighth Air Force. Appliqué armor has been installed on the side of the cockpit. (Stan Piet collection)

This B-24H, nicknamed *Merchant,* was assigned to the Eighth Air Force's 34th Bomb Group, 4th Bomb Squadron, and later was reassigned to the Mediterranean Theater. (U.S. Air Force Academy, via Kent Ramsey)

Big Dealer, a B-24H-21-FO 42-94851, was assigned at one point to the 34th Bomb Group. In the "21" in the nomenclature stencil, the "1" has been added in darker paint. (U.S. Air Force Academy, via Kent Ramsey)

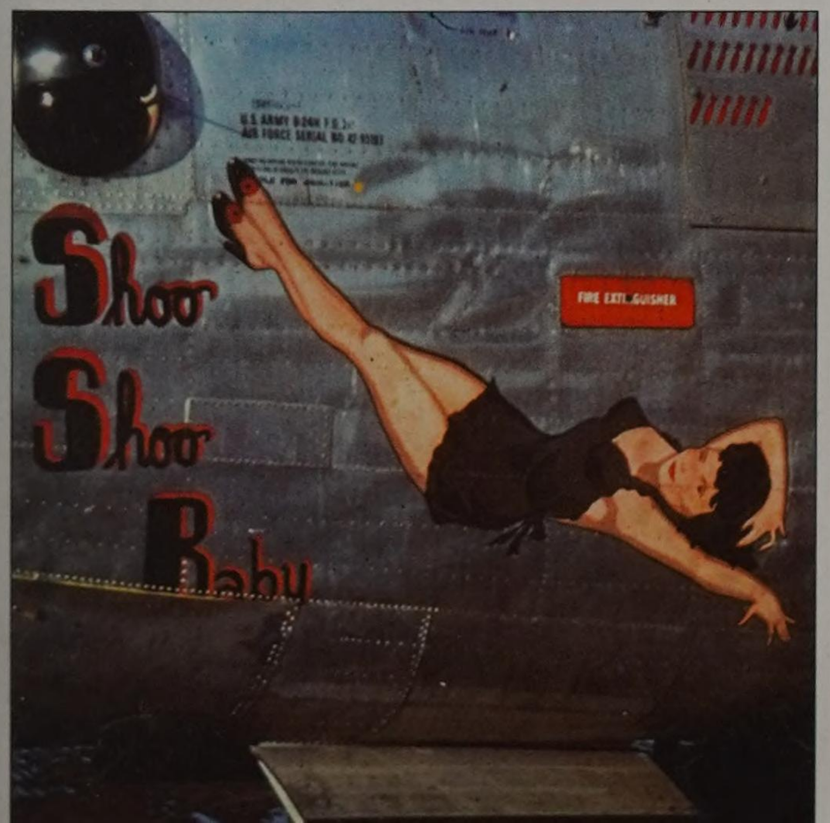


Ginger, B-24H-1-CF, was another Liberator of the 446th Bomb Group, serving with the 706th Bomb Squadron. Fort Worth-assembled, its serial number was 41-29177.

Another 706th Bomb Squadron Liberator was *Old-Faithful,* B-24H-1-FO serial number 42-7505. The bubble window modification obliterated part of the artwork.

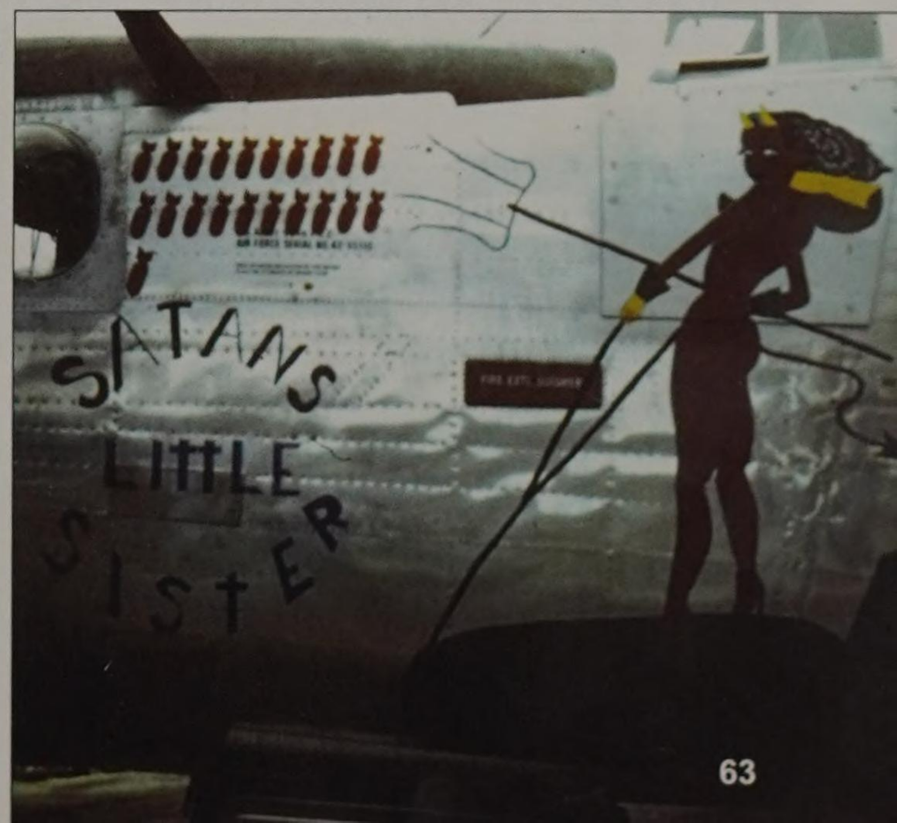
Rugged but Right, B-24H-20-FO 42-94953 of the 490th Bomb Group, 851st Bomb Squadron, Eighth Air Force, also later served with the 492nd and 448th Groups. (U.S. Air Force Academy, via Kent Ramsey)

Shoo Shoo Baby, B-24H-25-FO serial number 42-95197 of the 446th Bomb Group, 704th Bomb Squadron, crashed at Raveningham, England, on 4 April 1945. Several B-24s bore the nickname *Shoo Shoo Baby.*



The *Terry and the Pirates* comic strip, created by Milton Caniff, provided the character *Dragon Lady* for B-24H-30-FO serial number 42-95306 of the 706th Bomb Squadron, Eighth Air Force.

Another Liberator of the 706th Bomb Squadron Liberator, *Satan's Little Sister* was B-24H-25-FO serial number 42-95180. This she-devil is riding a bomb standing up.



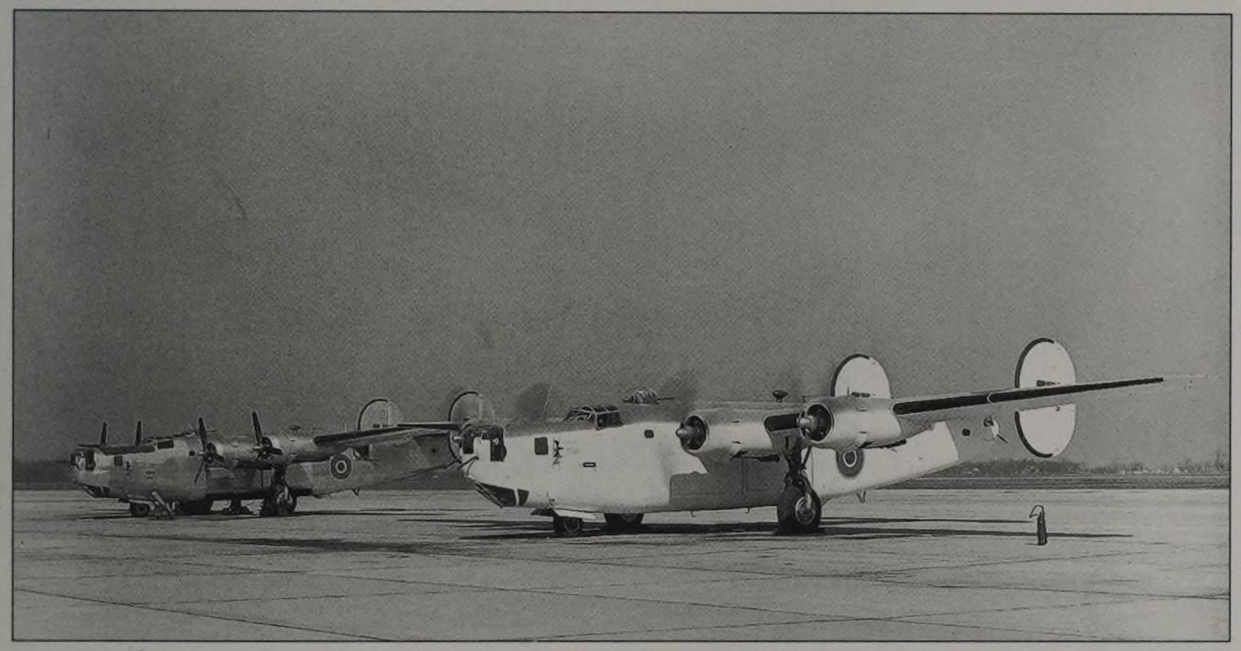
After having its hydraulic system damaged during a mission, this B-24H-25DT, serial number 42-51141, made it back to its base at Attlebridge, England, and was able to land safely without brakes by deploying two crew parachutes secured to the waist windows. The aircraft was with the 466th Bomb Group, 784th Bomb Squadron, Eighth Air Force. (National Archives)

The Jinx, B-24H-20-FO serial number 42-94837, served with the 490th Bomb Group, 848th Bomb Squadron, Eighth Air Force, before being transferred to the Mediterranean Theater in December 1944. Painted under the name *The Jinx* was a bracelet chain with various charms, such as a pair of dice, an 8-ball, a four-leaf clover, and a white elephant.

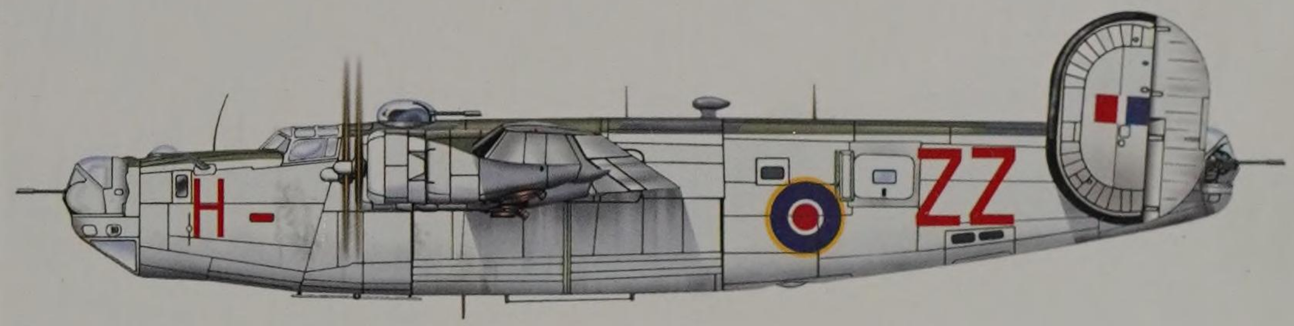
"Hap" Hazard, a B-24H-1-FO serial number 42-7580 and a veteran of 27 combat missions with the 445th Bomb Goup, 703rd Bomb Squadron, received a unique nose modification. The original nose and Emerson turret were removed, and a new clear nose was installed, with a Bell power tail turret from a B-26 being mounted below it.

A view inside Consolidated Aircraft's Fort Worth plant discloses several different types of Liberators under assembly. In the line to the right, first up is B-24H-25-CF serial number 42-50395, with RAF-bound Liberators, either Mk. VI or Mk. VIII, interspersed in the line. To the left are C-87-CF Liberator Expresses, with 44-39214 to the far left.

Liberator VI

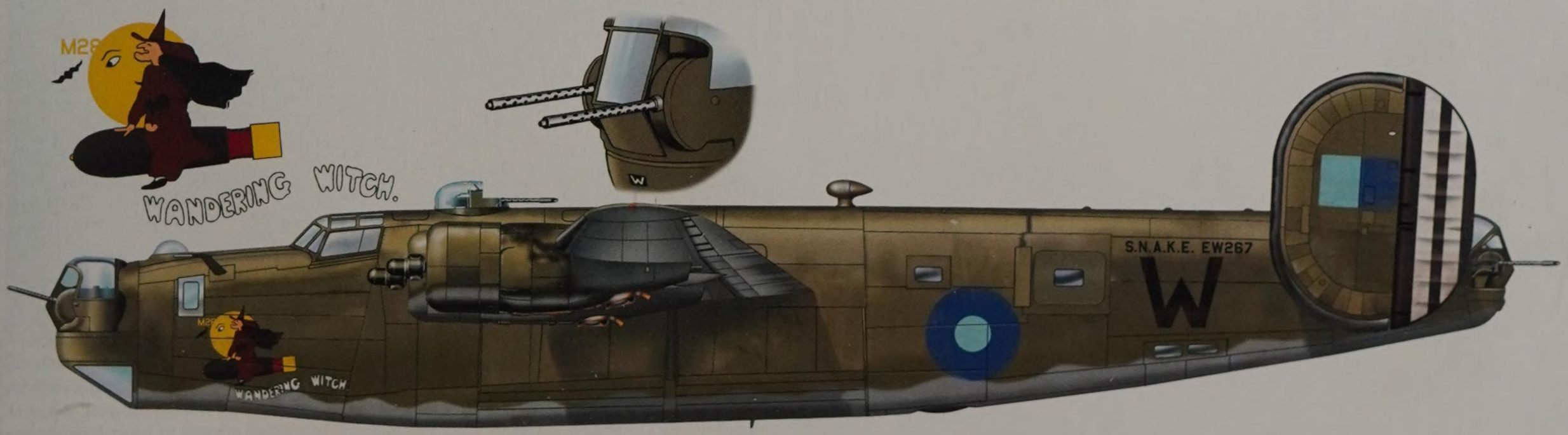


The RAF's Liberator Mk. VI was not a distinct equivalent to one model of the B-24, but an amalgam of several models. Liberator Mk. VI was the designation given to the B-24Gs and B-24Hs delivered to the RAF, as well as all of the 739 San Diego-built B-24Js and the first 500 Fort Worth-assembled B-24Js. The Mk. VI usually had the Consolidated nose turret, except for the majority of B-24Gs and B-24Hs that had Emerson nose turrets. The Liberator Mk. VI received letter designations of B for bomber, C for cargo, and GR for long-range maritime patrol. For example, the Liberator B Mk. VI was the bombing type. These two Liberators Mk. VI were photographed at Ford's Willow Run plant.



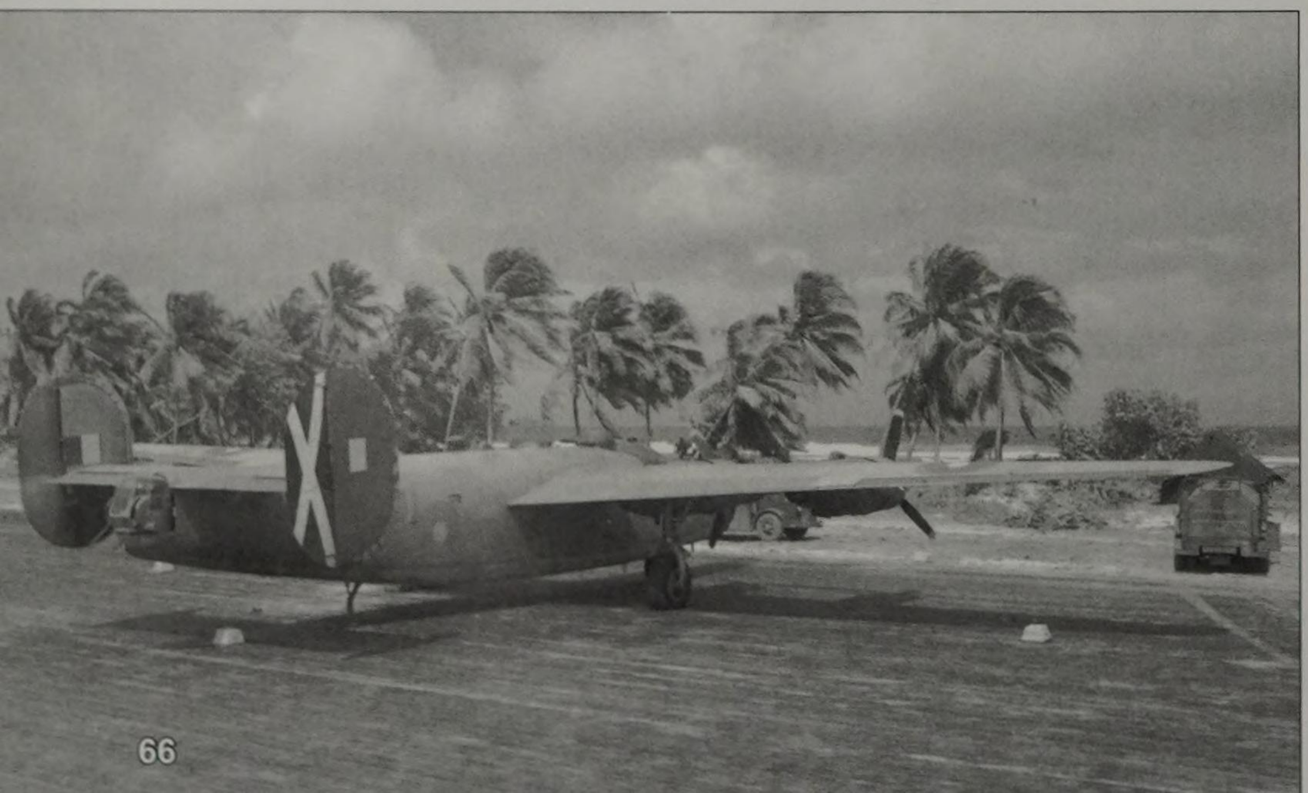
This Liberator GR Mk. VI was flown by Number 220 Squadron of the Royal Air Force's Coastal Command in World War II. The letters "ZZ" on the waist were the code letters for No. 220 Squadron. The "H" on the nose was the individual aircraft's identifier. This squadron performed anti-submarine patrols throughout World War II, originally flying Avro Anson and later Lockheed Hudson patrol bombers. After being assigned to a succession of RAF bases, in October 1943 the squadron was transferred to RAF Lagens in the Azores. The squadron received its Liberators in December 1944. Number 220 Squadron returned to the United Kingdom in June 1945.

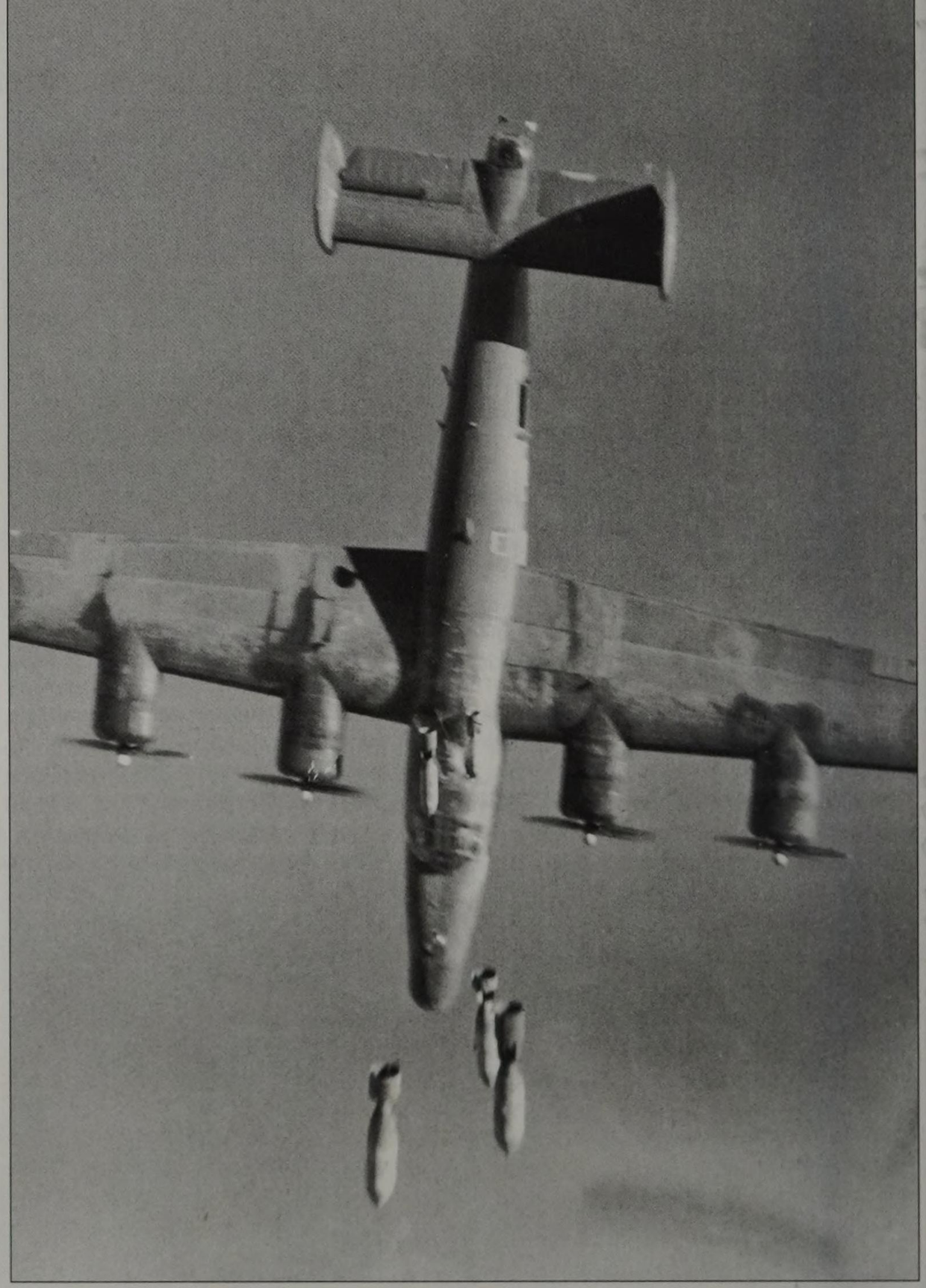
Wandering Witch was an olive drab Liberator B. VI, code EW267 (W), flying with the 355 Squadron, South East Asia Command. This particular Liberator B. VI was built by Consolidated in Fort Worth as B-24J-30 serial number 44-10270, survived the war and was struck off charge on 11 April 1946.



On 27 July 1945, Liberator B Mark VI serial number KL654, of No. 356 Squadron, RAF, is being prepared at an airfield on Brown's West Island, the largest of the Cocos Islands, for an operational mission against a target in Southeast Asia. A week later, this aircraft and its crew were lost while performing a special-duties flight over Thailand.

A Consolidated Liberator B Mk. VI of No. 356 Squadron, RAF, rests on a bitumenized hardstand at Brown's West Island, Cocos Islands, in the summer of 1945. In addition to the Liberator B Mk. VI long-range bombers, Liberator GR Mk. VI coastal patrol aircraft also flew from this base, located between the northwest coast of Australia and Sumatra.





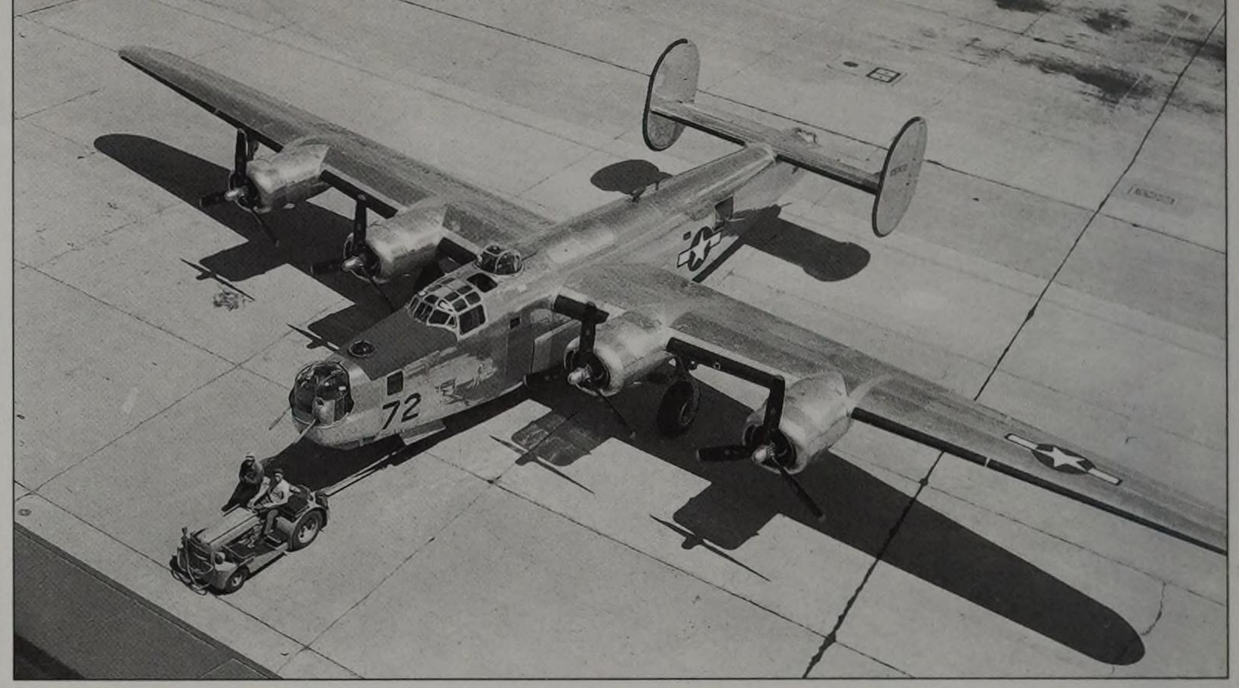
In what appears to be a catastrophe about to happen, a stick of 1,000-pound bombs is headed straight for Liberator B Mk. VI KK320 of No. 37 Squadron, RAF, during a raid on Monfalcone, Italy, in March 1945. Amazingly, the Liberator was not destroyed; it lost a propeller and suffered a large hole in the fuselage, but made it back to base.

B-24J

In 1943, Consolidated merged with Vultee, and the new firm, Consolidated-Vultee, or Convair, continued production of Liberators. The San Diego plant commenced production of the B-24J in August 1943. This model improved on the B-24D by adding a factory-installed nose turret. This turret was eventually standardized as the Emerson A-15, but because of shortages in that turret's production, often the Consolidated A-6A and A-6B turrets were used until sufficient quantities of the Emerson A-15 were available. The Martin A-3B and A-3C top turrets gave way in late production blocks to the Martin A-3D "high hat" turret, with a taller Plexiglas housing for improved visibility for the gunner. The J model was the only model of Liberator produced by all five Production Pool factories, and total production of the J model exceeded by far that of any other model, with 6,678 being completed. Shown here is B-24J-1-FO serial number 42-50753, with a Consolidated A-15 turret.

Because for the first time all five plants in the Liberator production pool were producing a single model, the B-24J was the most produced version of the Liberator, totaling 6,678 aircraft. The J model designation was initially to be used to distinguish Consolidated-built bombers fitted with factory-installed nose turrets, and accordingly production began at the Convair (Consolidated had merged with Vultee 17 March 1943 to form Convair) San Diego plant in August 1943. This followed with the Convair Fort Worth plant the next month, although the latter also continued to produce B-24H from kits supplied by Ford until 2 May 1944. In mid-1944 the Army specified further changes to the Liberator, such that all five plants would be producing the B-24J, with Ford production beginning in April, and Douglas and North American in May.

Despite all five plants working in concert on this model, multiple variations did exist between aircraft dependant upon their origin. Chief among those were waist gun positions, which were from the outset enclosed and staggered on all J models except those produced in San Diego. This staggering was done not by relocating the waist gun windows, as on the late B-17G, but by relocating the gun mounts themselves. The K-6 mount was installed in the lower rear corner of the left-hand waist position, and in the lower front corner of the right hand gunner's position. This change was also made in San Diego, but not until late in the production run. Also, the nose gear doors open inward on most San Diego-made B-24Js, while opening outward on B-24Js built at other facilities.



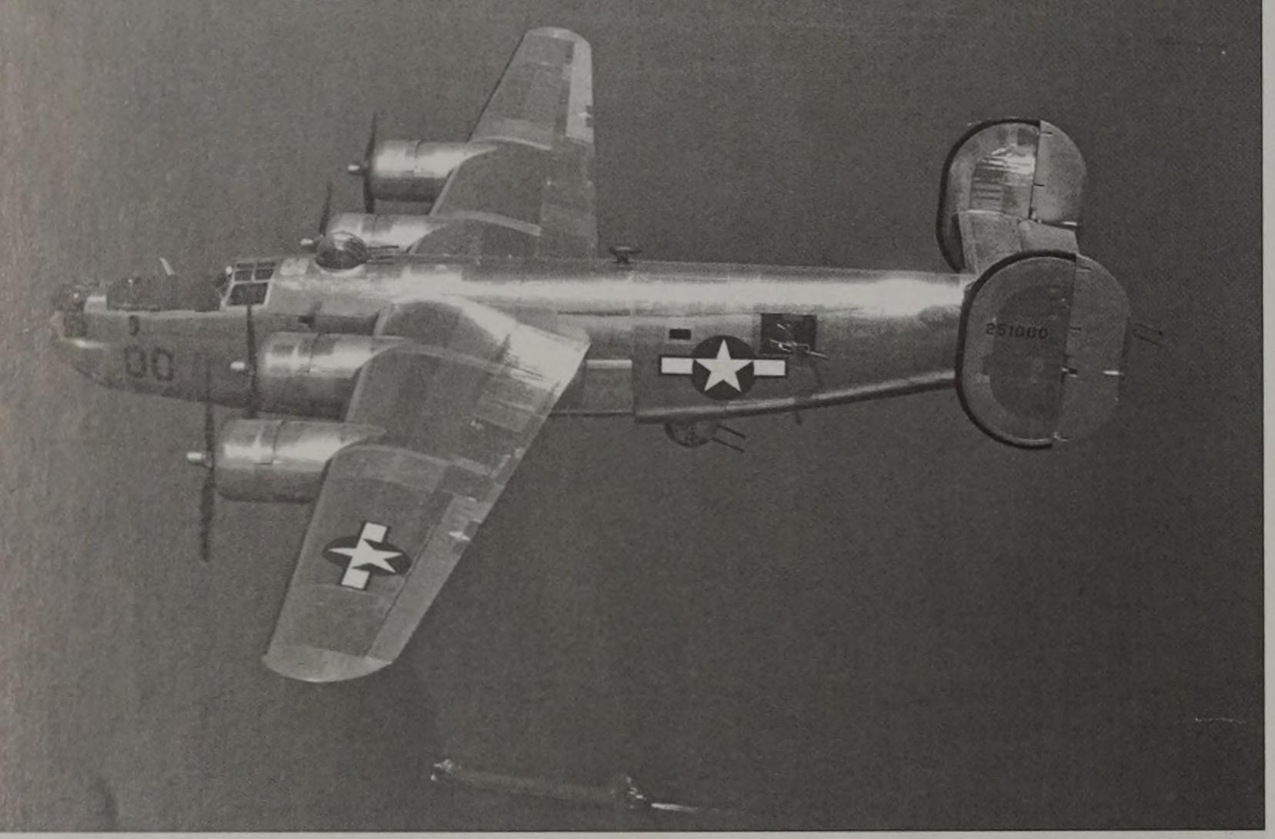
An aircraft tug wheels out a new Willow Run B-24J-15-FO. This aircraft is equipped with the Emerson nose turret, and it lacks the distinctive mast-mounted pitot tubes found on many B-24Js, as they had been replaced by a small, single pitot tube on the lower left side of the forward fuselage. All Ford B-24Js had outward-opening nose-gear doors.

B-24J-1-FO serial number 42-50552 shows off its undersides. The ball turret is retracted, with its machine gun barrels recessed in troughs in the belly. Two mast-mounted pitot tubes are present. Staggered waist mounts were introduced, with the port gun at the rear of the window and the opposite gun positioned at the front of the starboard window.

The 5,000th Ford-produced Liberator was B-24J-10-FO serial number 42-51623. Two characteristics of Ford B-24Js are visible: the curved notch (the so-called S-curve) in the front edge of the fairing aft of the nose turret, to give sideways clearance to the guns, and the small downward jog in the antiglare panel about one foot forward of the windshield.

In 1944, probably during the summer, a USAAF photographer took a series of photos of Crew 65 of the 458th Bomb Group, 755th Bomb Squadron, Eighth Air Force. Staff Sergeant Walter Newbury of Batavia, New York, mans the Martin top turret, an earlier type that preceded the Martin A-3D "high hat" turret found on many but not all B-24Js. (National Archives)

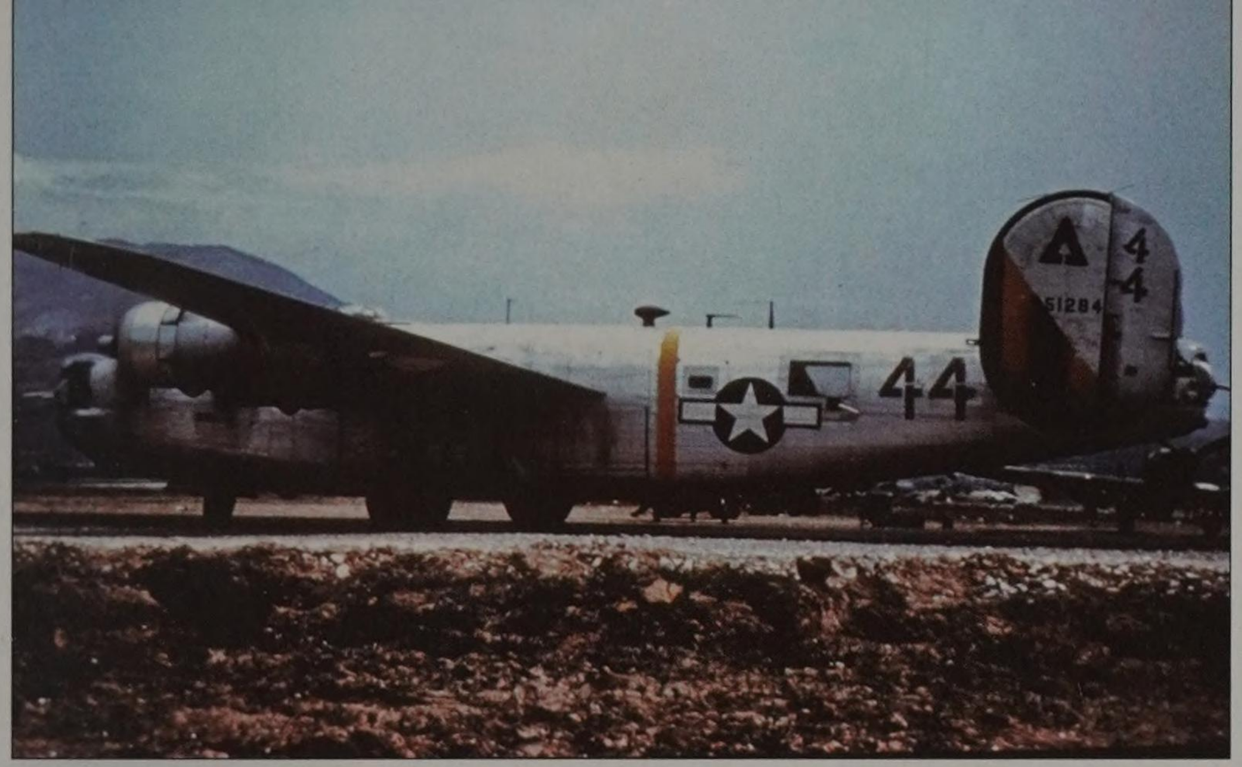
A tail gunner peers through the sight, with twin-.50-caliber machine guns lowered toward the photographer. This is an MPC A-6B tail turret, distinguishable by its symmetrical guns and slightly curved sighting window. Two lifting eyes are attached to the plate below the sighting window, and below the turret are the bomb-signal lights. (National Archives)



B-25J-5-FO serial number 42-51000 was assembled at Convair's Fort Worth facility. It featured such Ford design features as the S-shaped fairing on the fuselage aft of the nose turret, and the small downward jog in the antiglare panel forward of the windshield. The top turret is the Martin A-3D "high hat," with extra headroom for the gunner.

A Willow Run Liberator, B-24J-1-FO serial number 42-95559, skims above the clouds. Camouflage painting of Liberators at Willow Run had been discontinued during production of the H model. This made the bare-aluminum bombers more visible to enemy gunners and pilots, but gave the planes a slight edge in better speed and lighter weight.

Technical Sergeant James R. Holman of the 755th Bomb Squadron, from Newton, Mississippi, poses next to his .50-caliber machine gun in the port waist window of a Liberator. The clear window has been removed, and the gun is mounted to a universal-type swivel mount—depending on the type of gun sight, the type K-6 or K-7 mount. (National Archives)

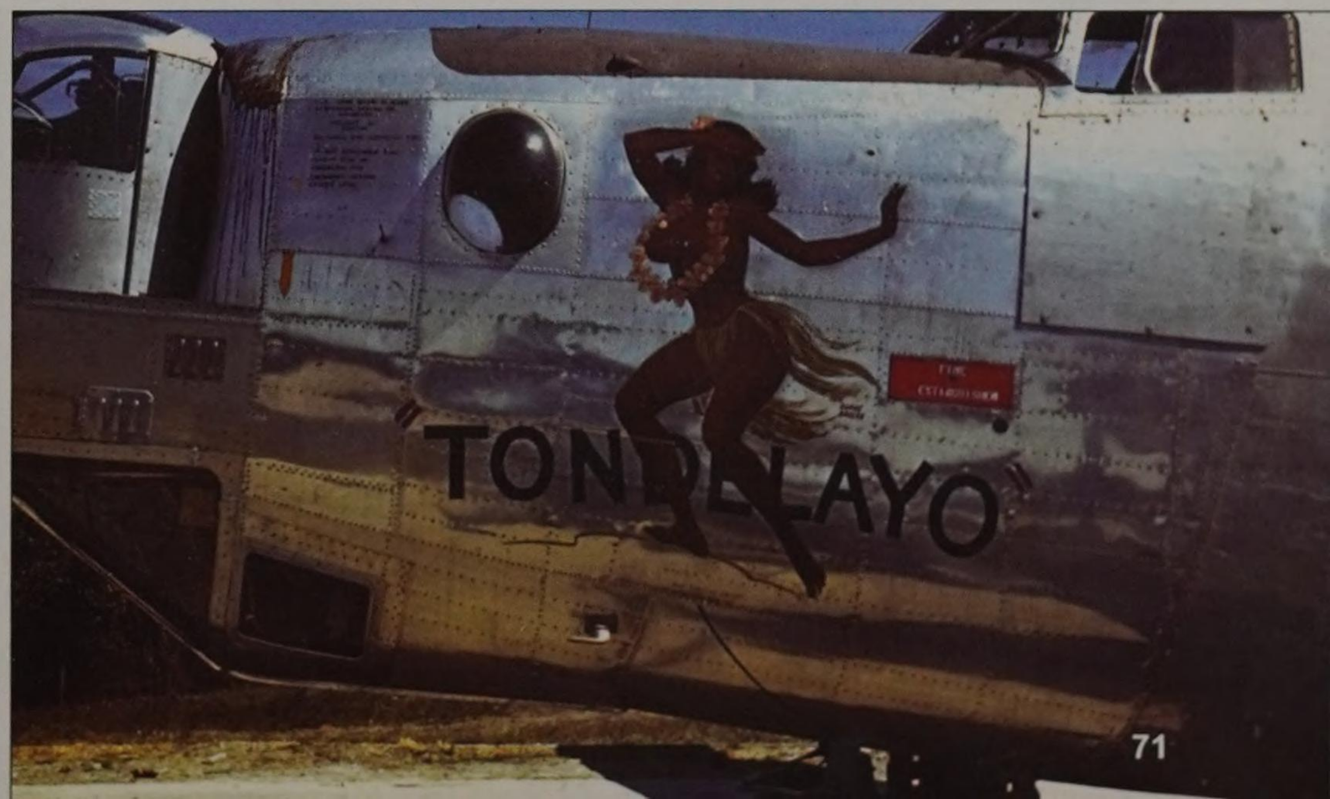


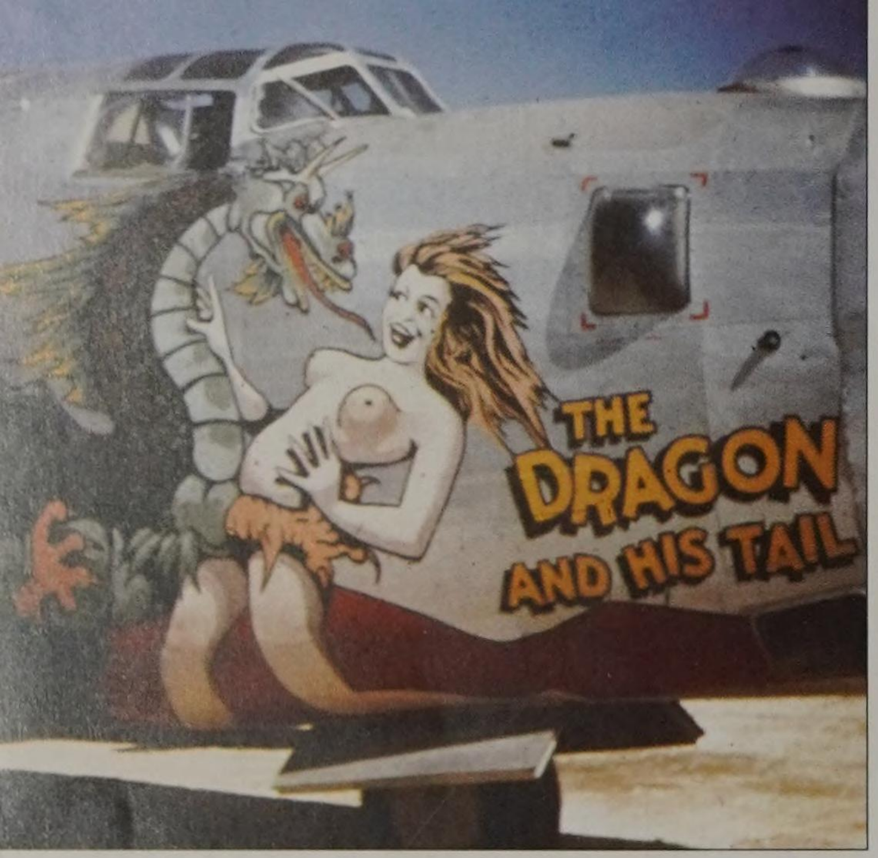
Douglas Tulsa-built B-24J-1-DT serial number 42-51284, of the 450th Bomb Group "Cottontails," 722nd Bomb Squadron, taxis on a runway in Italy in early 1945. On the vertical stabilizer are the triangle and black and yellow vertical stripes that signified the 450th Bomb Group of the 47th Bomb Wing, Fifteenth Air Force.

Tubarâo is the Portuguese word for shark, and this B-24J-145-CO, serial number 44-40101, carried that nickname and appropriate sharkmouth nose art. This photo shows the aircraft while assigned to the 491st Bomb Group, 855th Bomb Squadron, Eighth Air Force, and being used as an assembly aircraft, with high-visibility markings.

Several bombers were named after *Shoo Shoo Baby,* a 1943 hit song by the Andrews Sisters. The song featured in the movie *Three Cheers for the Boys* – later retitled *Follow the Boys* – one of many wartime films created to boost morale of both troops and citizens. This *Baby* was B-24J-120-CO 42-109984 of the 22nd Bomb Group, 408th Bomb Squadron. (Stan Piet collection)

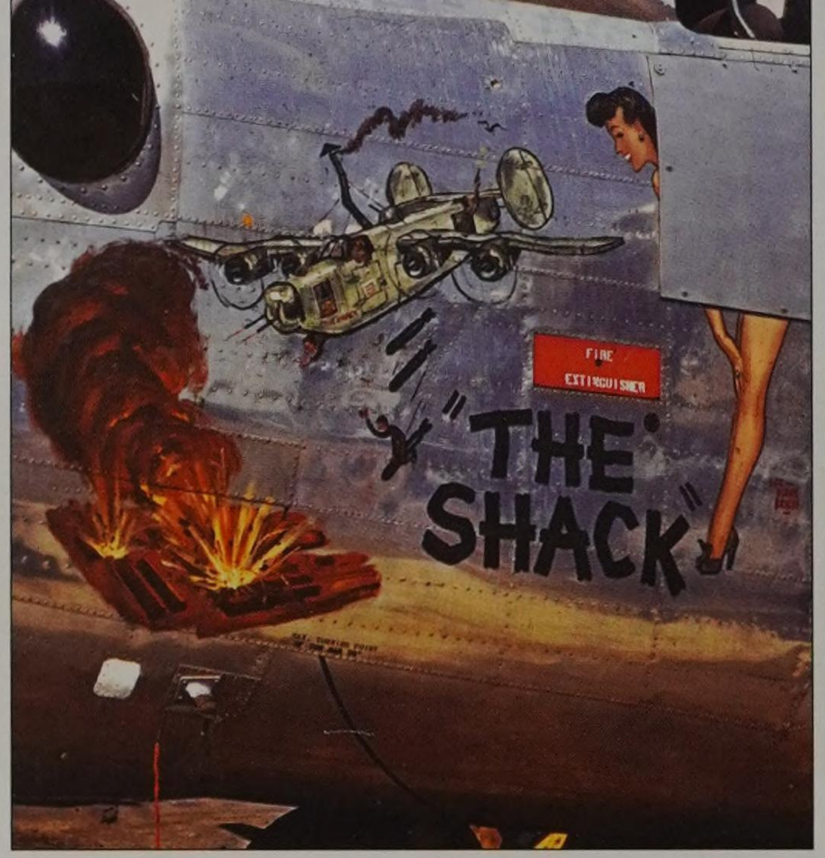
Tondelayo was the nickname of B-24J-155-CO serial number 44-40284, of the Eighth Air Force's 34th Bomb Group, 391st Bomb Squadron. On 19 July 44, the plane was struck by flak during a raid over the Continent, but all crewmembers were able to bail out before it crashed. Note the small pitot tube on the fuselage below the hula girl. A small pitot tube is on the fuselage below the hula girl and oval navigator's window.





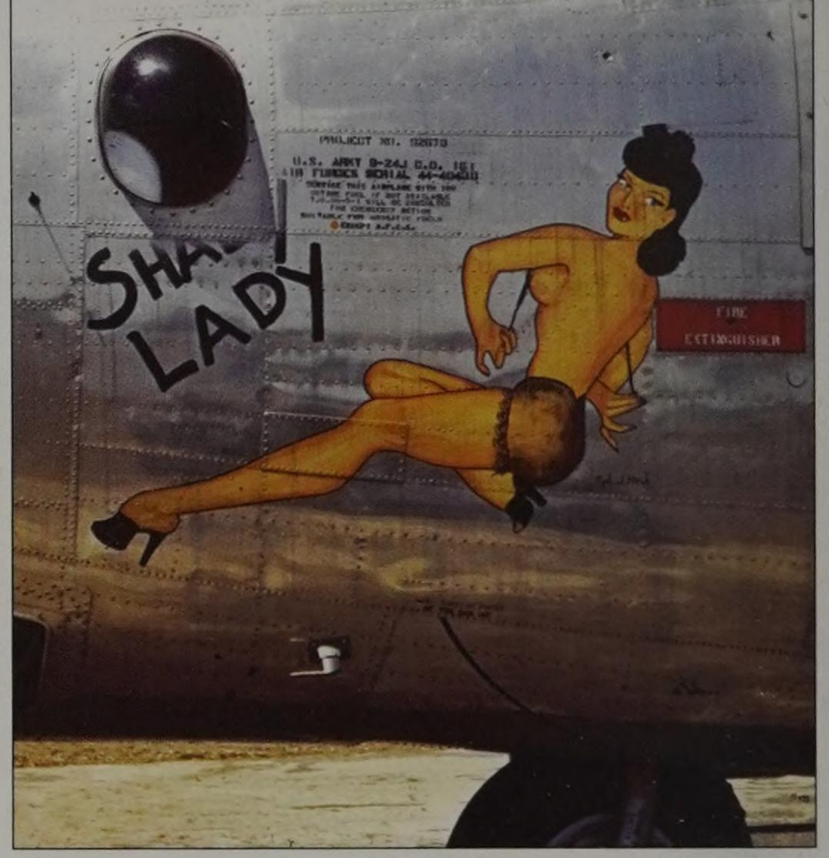
The Dragon and His Tail was the nickname of B-24J-190-CO serial number 44-40973, serving with the 43rd Bomb Group, 64th Bomb Squadron, Fifth Air Force.

Two field modifications, the copilot's armor and the bubble scanning window, obliterated part of the nose art of *"Lassie" Come Home,* a B-24J-5-DT, serial number 42-51356.



The Shack, B-24J-155-CO 44-40298, of the 458th Bomb Group, 754th Bomb Squadron, had part of its nose art covered by the addition of pilot's armor. (U.S. Air Force Academy, via Kent Ramsey)

The B-24J-80-CO nicknamed *Lonesome Polecat, Jr.* was serial number 42-100235, assigned to the 308th Bomb Group, 425th Bomb Squadron, Fourteenth Air Force.



Shady Lady was the nickname of B-24J-161-CO serial number 44-40439 of the 389th Bomb Group, 566th Bomb Squadron, Eighth Air Force. (U.S. Air Force Academy, via Kent Ramsey)

B-24J-CO-150, 44-40208, was named *Kentucky Belle.* Three red boxcars and a parachute bomb are painted next to the numerous mission markings (Stan Piet collection)

B-24J-110-CO serial number 42-109840, assigned to the 11th Bomb Group of the Seventh Air Force, is shown on a 1944 raid on Chichi Jima. In place of a tail turret, this aircraft had a Plexiglas-covered stinger with hand-operated machine guns. This model of B-24J came from the factory with the A-3C top turret. Note the open waist window. (National Museum of the United States Air Force)

Late-model Liberators are lined up, providing a clear view of the horizontal stabilizer and elevators, the upper fuselage, and the inner wing sections of the aircraft in the foreground. The "dots" along the center top of the fuselage are three formation lights with blue lenses. At the bottom, the tail turret and the top of a front turret are visible. (National Museum of the United States Air Force)

B-24Js of the 458th Bomb Group, Eighth Air Force, gain altitude behind a polka-dotted assembly plane above the English coastline. The Liberator to the left bears the J4 code of the 753rd Bomb Squadron, while the other two planes wear the Z5 of the 754th Bomb Squadron. The nose art on the left plane is of a woman wearing a swimsuit in a canoe. (National Archives)

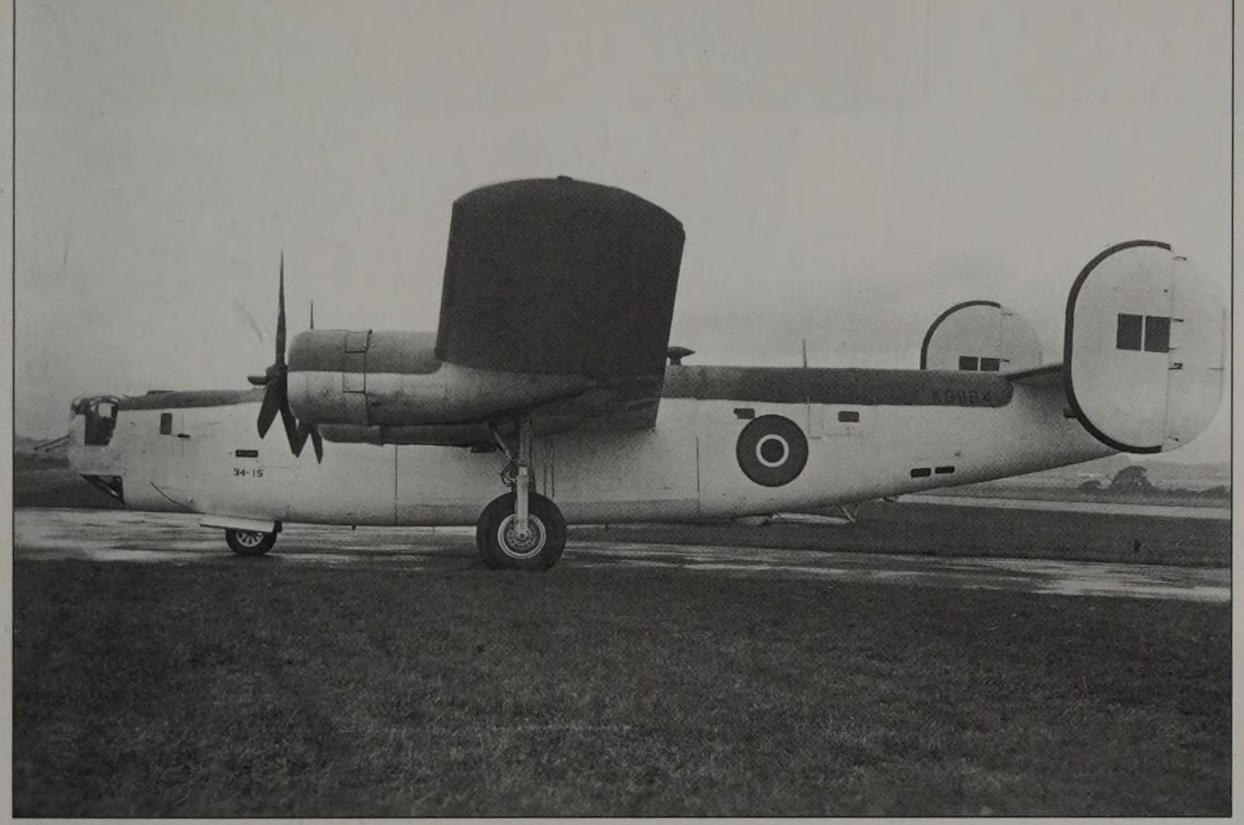
Li'l Audrey' Grows Up, B-24J-5-CO serial number 42-73016, 11th Bomb Group, 431st Bomb Squadron, was the first bomber in the Seventh Air Force to be credited with completing 100 bombing missions. Note the bubble-type sliding window of the cockpit, the machine-gun socket in the scanning window to the left, and the aircraft jack to the lower right.

During a raid on Vienna, Austria, on 13 October 1944, a Liberator numbered 57, probably a B-24J, of the Fifteenth Air Force trails smoke after being hit by flak. For a heavy bomber experiencing a fire in the engine or related systems, hundreds of miles from its home base, it could be a long, unnerving ride back, if the aircraft made it at all. (National Museum of the United States Air Force)

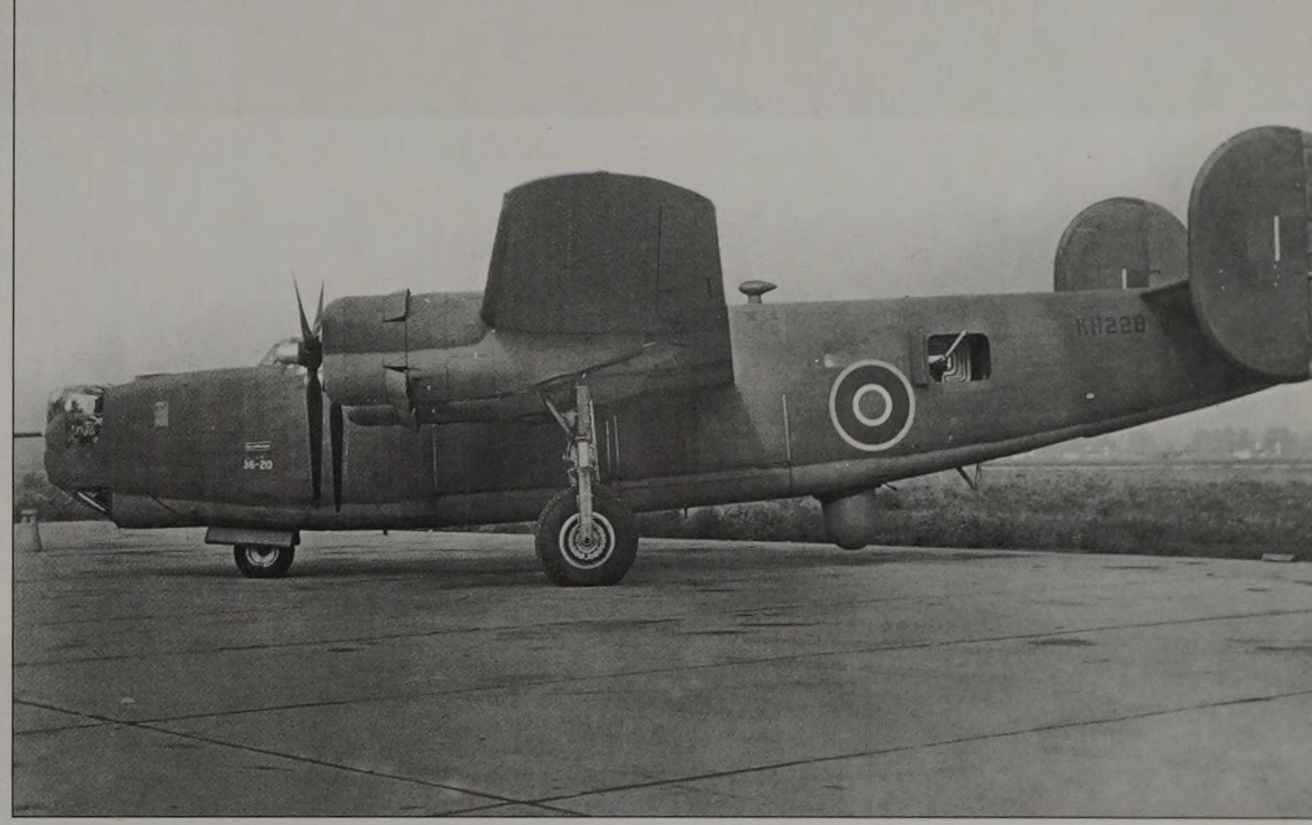
When their aircraft were damaged in raids over the Continent, USAAF crews had no alternative but to land in Switzerland, which, under the terms of neutrality, would intern them and their aircraft. One such plane was B-24J-20-FO 44-48775, of the 742nd Bomb Squadron, photographed in Swiss markings at Altenhrein Air Base, Switzerland. (Hans-Heiri Stapfer)

A B-24J of the 90th Bomb Group, Seventh Air Force, in natural aluminum finish, displays that bomb group's skull-and-crossbones insignia on the tail. The blue background on the tail indicates that the aircraft was assigned to the 319th Bomb Squadron. A very faded antiglare panel is present to the front of the cockpit windshield.

Liberators of the 90th Bomb Group "Jolly Rogers," Seventh Air Force, fly in formation. In the foreground is what appears to be a B-24J. That aircraft's call number, 720, is painted toward the top of the vertical fin. To the immediate front of the open waist window is an air deflector, to keep some of the airflow from rushing into the aircraft.

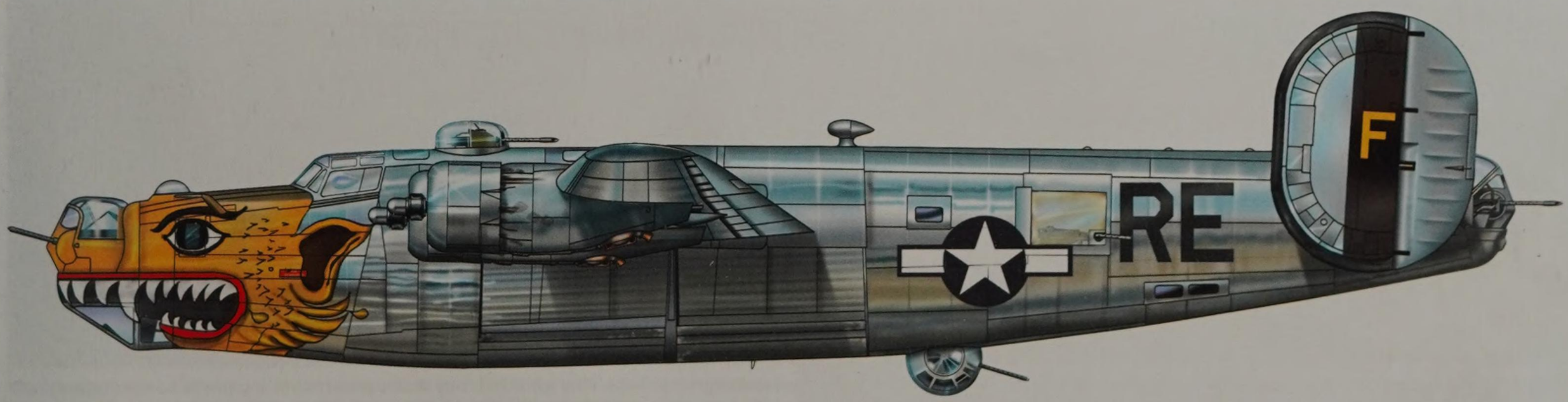


The Liberator Mk. VIII was the Royal Air Force's designation for the late B-24Js and B-24Ls it acquired. Liberator GR Mk. VIII serial number KG984 was photographed in August 1944. The aircraft served with Nos. 224, 59, and 220 Squadrons, RAF. As with earlier marks of Liberator, the GR designation stood for Coastal Command aircraft.



Liberator B Mk. VIII ("B" standing for bomber), serial number KH228, awaits delivery to the RAF at the Convair Modification Center, Louisville, Kentucky, August 1944. The belly radome–equipped aircraft would serve with No. 614 Squadron, RAF, in Italy. With few exceptions, the Liberator Mk. VIII had the Consolidated nose turret.

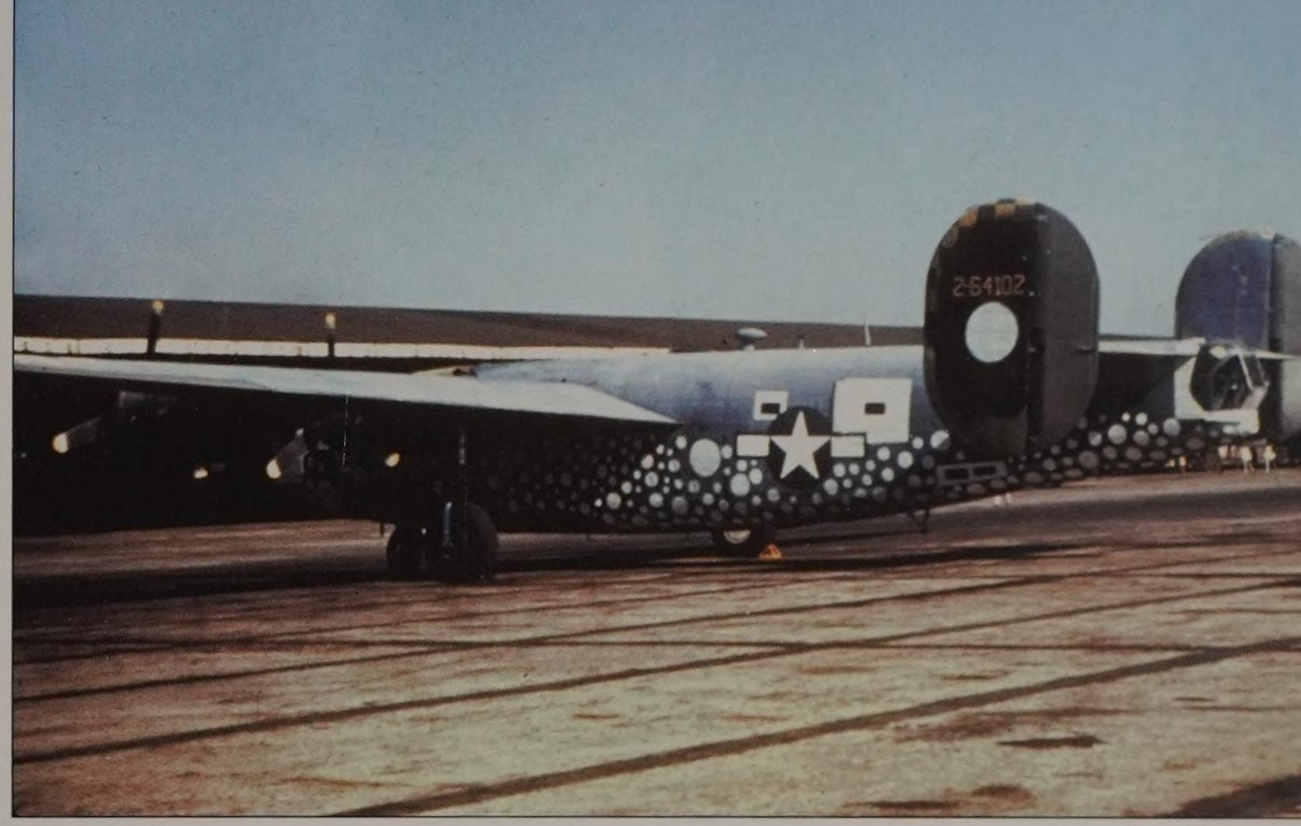
B-24J of the 93rd Bomb Group, 329th Bomb Squadron, carries an ill-tempered dragon's face on the nose. This liberator survived the war.



F7A/F-7B

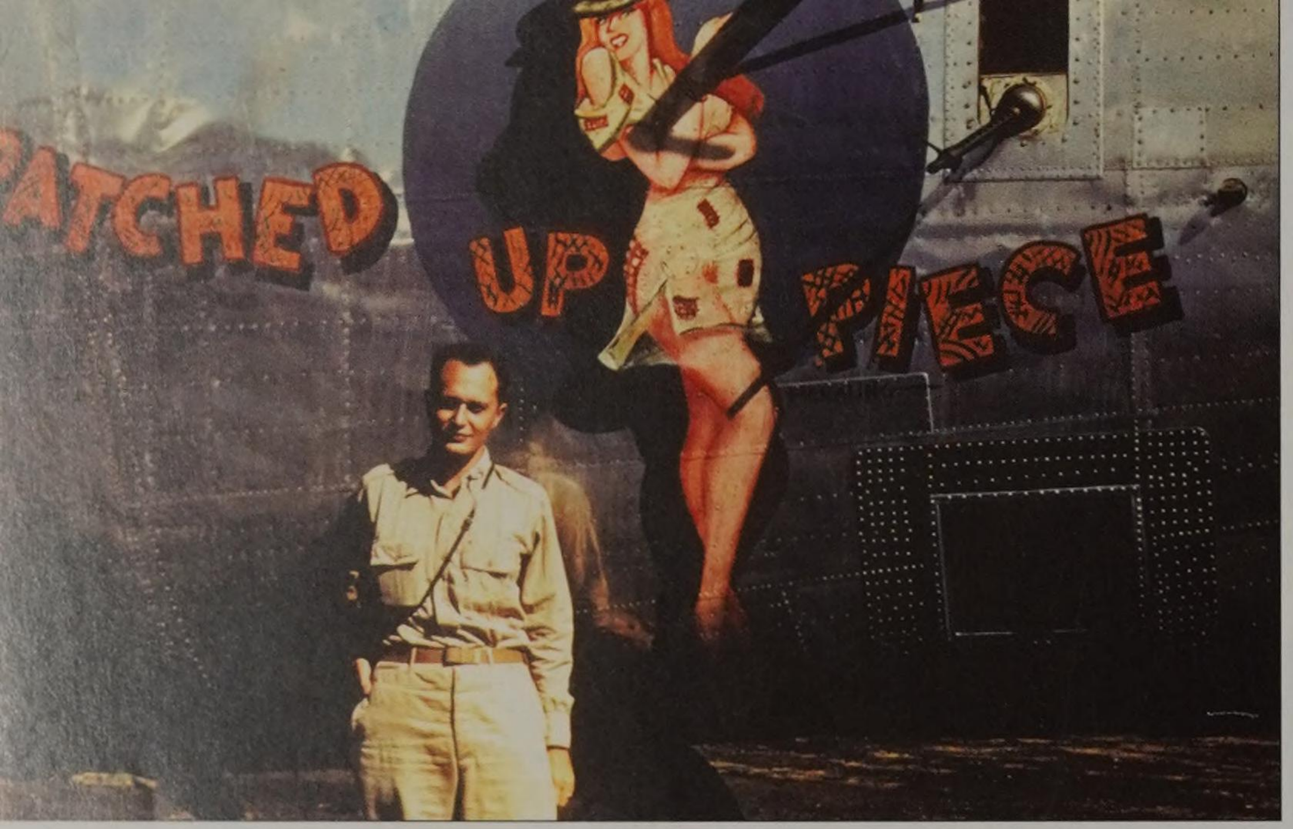
Some B-24Js were converted to photo-reconnaissance aircraft. These planes were then redesignated F-7A. The aft bomb bay was converted to a camera compartment, with two vertical cameras. The F-7A retained the B-24J's defensive weapons. Auxiliary fuel tanks were often installed in the forward bomb bay for extended range. Almost 90 F-7A conversions were produced. Here, *Nosie Rosie,* F-7A serial number 42- 64102, of the 24th Combat Mapping Squadron, Tenth Air Force, displays its unusual polka-dot paint scheme. This plane started its career as a B-24J-1-CF.

Two camera operators equipped with oxygen masks are at work in a photo-reconnaissance Liberator, with what appears to be a K-18 high-altitude reconnaissance camera to the right. In addition to the F-7 and F-7A, another photo-recon Liberator, the F-7B, was produced, in which all five of its cameras were mounted in the aft bomb bay. (National Museum of the United States Air Force)



F-7A *Nosie Rosie* was photographed from the aft port side in Shanghai, China, after the end of World War II. The tail turret is lacking its .50-caliber machine guns, and the top turret apparently had been removed and the opening faired over. Faintly visible below the bomb bays are two T-shaped radio altimeter antennas.

The Rip Snorter was F-7A serial number 42-73047, serving with the Fifth Air Force's 6th Photographic Group (Reconnaissance), 20th Combat Mapping Squadron.

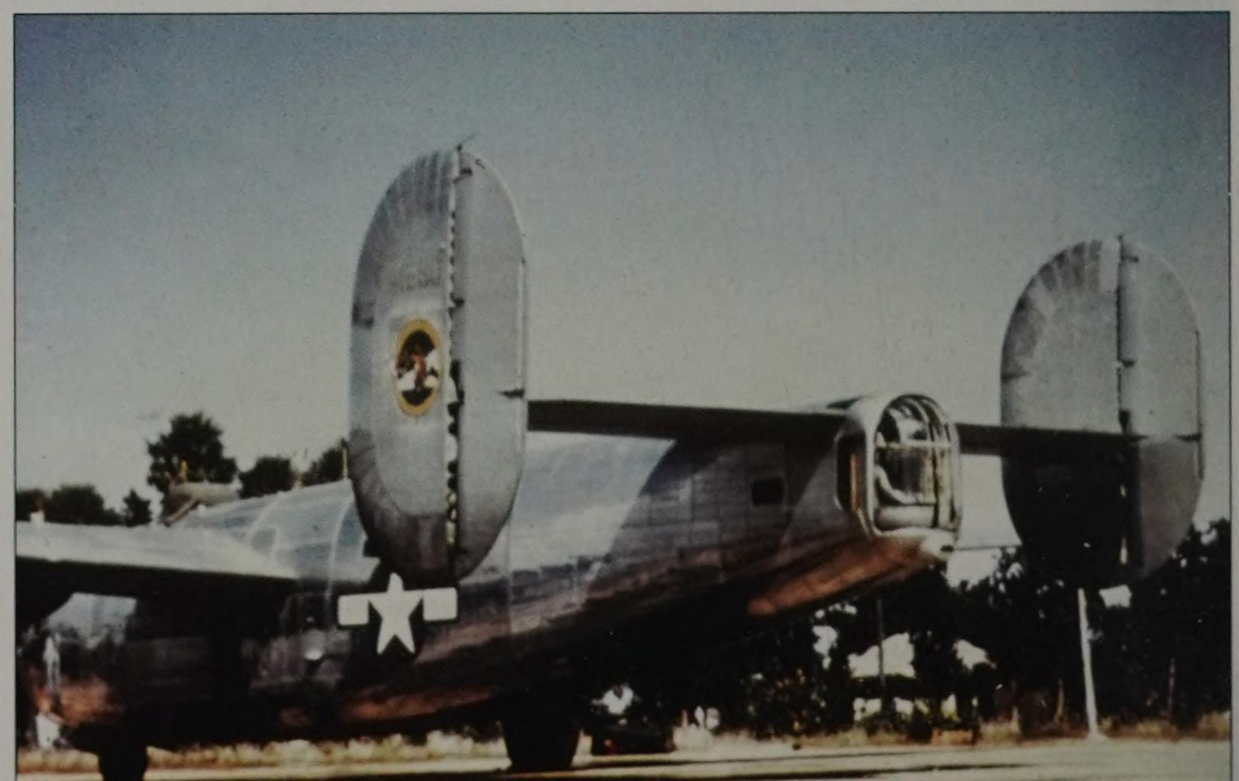


Patched up Piece, F-7A serial number 42-64047 and a conversion of a B-24J-1-CF, flew with the 6th Photographic Group, 20th Combat Mapping Squadron, of the Fifth Air Force. Toward the bottom of the fuselage below the socket-mounted cheek machine gun is a rectangular window for the starboard camera of the trimetrogon camera suite.

Another F-7A of the 20th Combat Mapping Squadron was *Photo Queen,* a conversion from a B-24J-5-CO serial number 42-73049. The artist, Cpl. Al G. Merkling, is shown at work on the nose art. A photo-lab technician and a gifted sketch artist, he was responsible for the nose art of other F-7As in the squadron, including *Patched up Piece.*

The F-7B was similar to the F-7A, but with all five cameras located in the aft bomb bay. *Well Developed,* an F-7B converted from B-24J-150-CO serial number 44-40209, served in a number of units in the Pacific, including the 11th and 49th Bomb Groups, the 4th Photographic Charting Squadron, and the 2nd Photo-Reconnaissance Squadron.

Several B-24Ls were converted to F-7Bs, including this B-24L-15-CO, serial number 44-41680. The aft port camera window is visible on what was formerly the aft bomb-bay door. The tail turret is the Convair M-6A, a lightweight, unpowered, "stinger" type with hand-held twin-.50-caliber machine guns, which was installed in some B-24Ls.

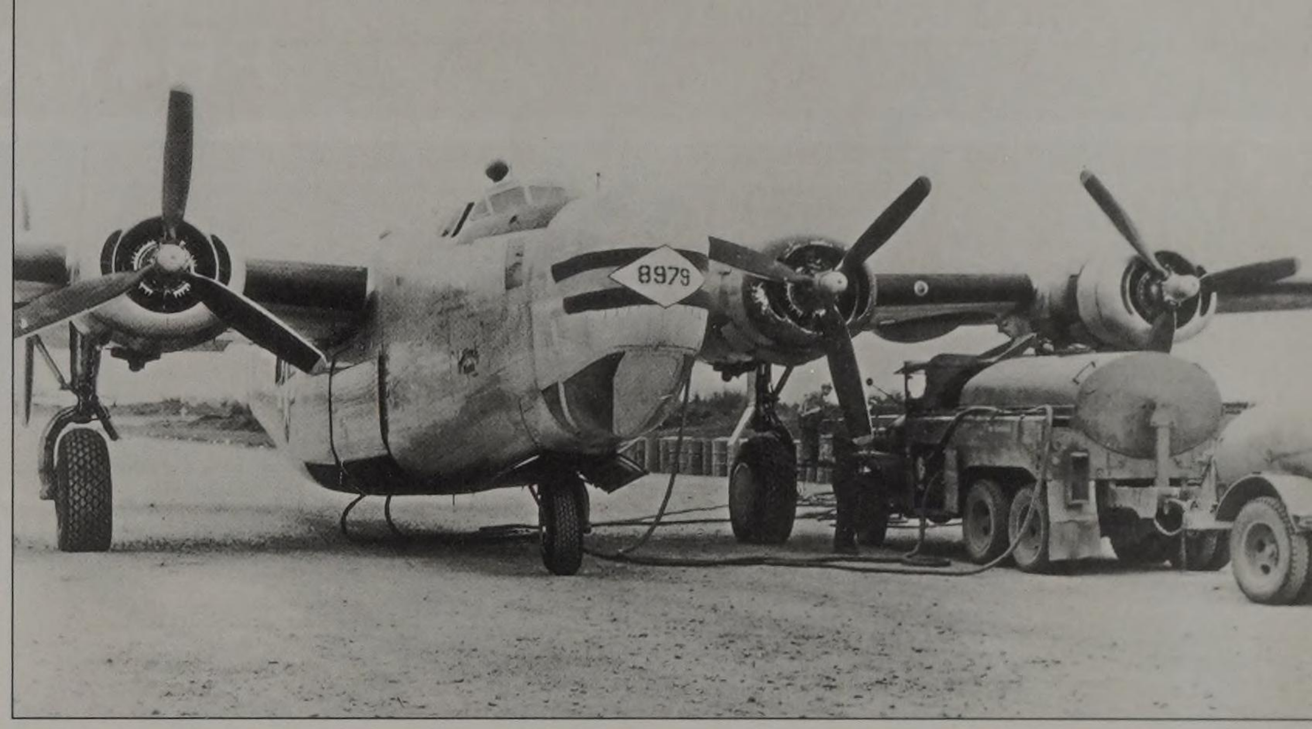


C-109

Fuel, particularly for the thirsty B-29s in the China-Burma-India Theater, was a growing problem. In order to provide adequate supplies, plans were made to convert 2,000 existing B-24J and B-24L bombers into fuel transports, to be designated C-109.

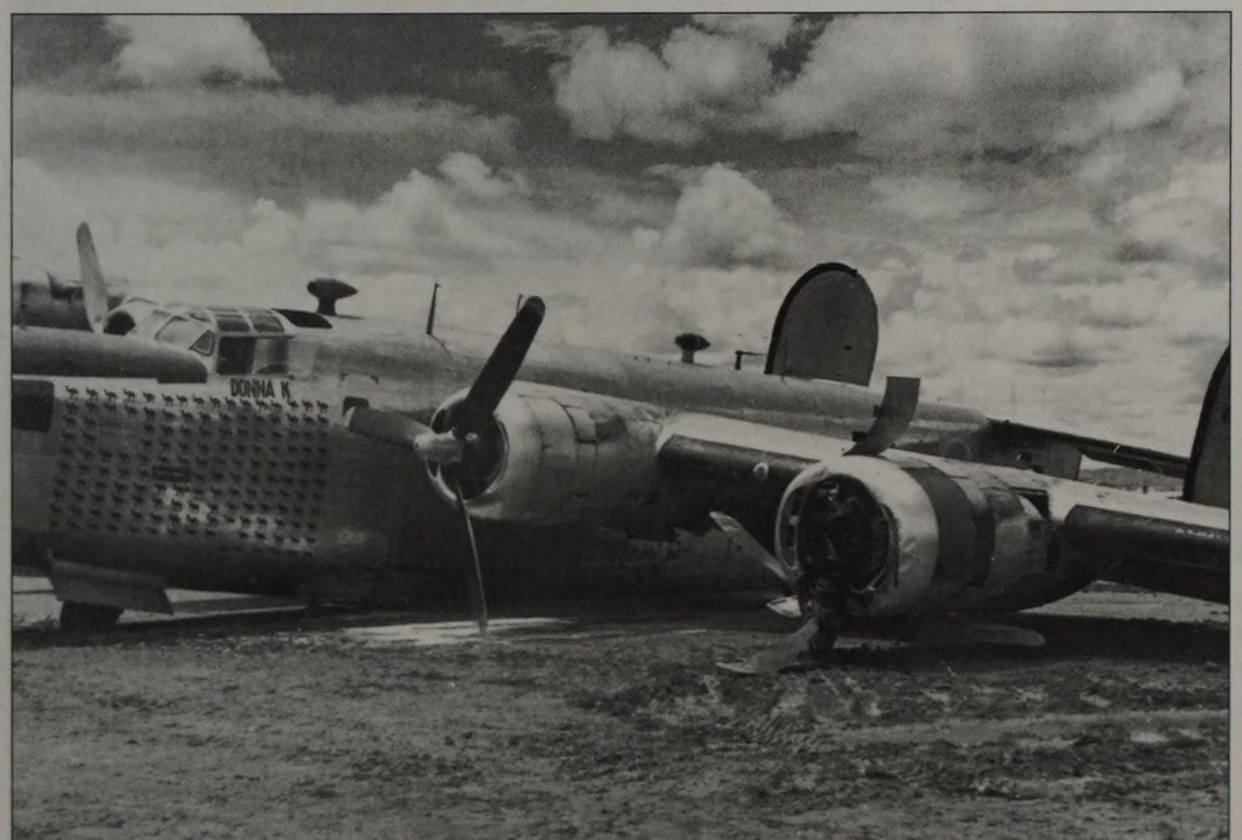
Typically stripped of all armament and then stuffed with six new fuel tanks, the former bombers, after modification, could transport up to 2,900 gallons of fuel each. Various modification centers in the United States performed these conversions, with the aircraft then being dispatched overseas. The bulk, as stated, were deployed to the CBI Theater, although a few did make their way to Europe. The tankers were not popular with crews, since the redistribution of weight of the laden aircraft, as compared to the bomber configuration for which it was designed, caused longitudinal instability. Furthermore, the high landing weight of a C-109 full of fuel made the aircraft difficult to land, particularly at airfields with an elevation over 6,000 feet, and often overtaxed the nose gear. In late 1944 when the Twentieth Air Force and its B-29s relocated to the Marianas, the need for the C-109 evaporated. The conversion program was halted after just over 200 of the tankers were produced.

Unlike post-WWII USAF tanker aircraft, the C-109 was purely a fuel transport, with no provision for refueling aircraft in flight.



The C-109 fuel transport was converted from existing B-24Js and B-24Ls and was intended to ferry fuel to B-29s operating from China. These tankers typically were disarmed, the nose and tail were faired over, and new fuel tanks with 2,900 U.S. gallons capacity were installed in the fuselage. Shown here is *Hamtramck Mama,* 44-48979.

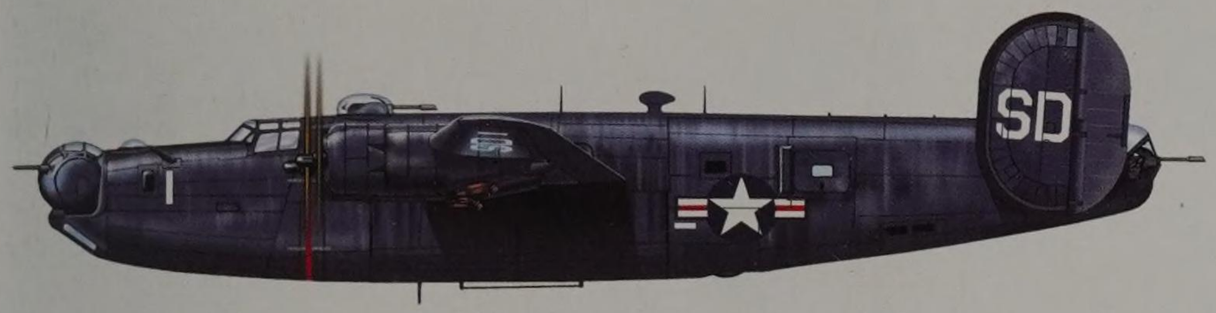
***White Angel,* C-109 44-49059, suffered a landing accident in Tezgaon, India, (now Bangladesh) on 2 November 1944 while serving with the 1st Transport Squadron. Eight months later, the same C-109 suffered a ground loop at the air base at Luliang, Yunnan Province, China, on 27 August 1945. The small camels painted on the fuselage represent supply missions over "the Hump." (National Museum of the United States Air Force)**



In the aftermath of the same accident shown in the preceding photo, *White Angel* rests on its belly after a landing accident. Flying fuel over "the Hump" was always hazardous, and the C-109s proved tricky to land when carrying a full load of fuel. Once B-29 bases were moved from China to the Marianas, the demand for C-109s was reduced. (National Museum of the United States Air Force)

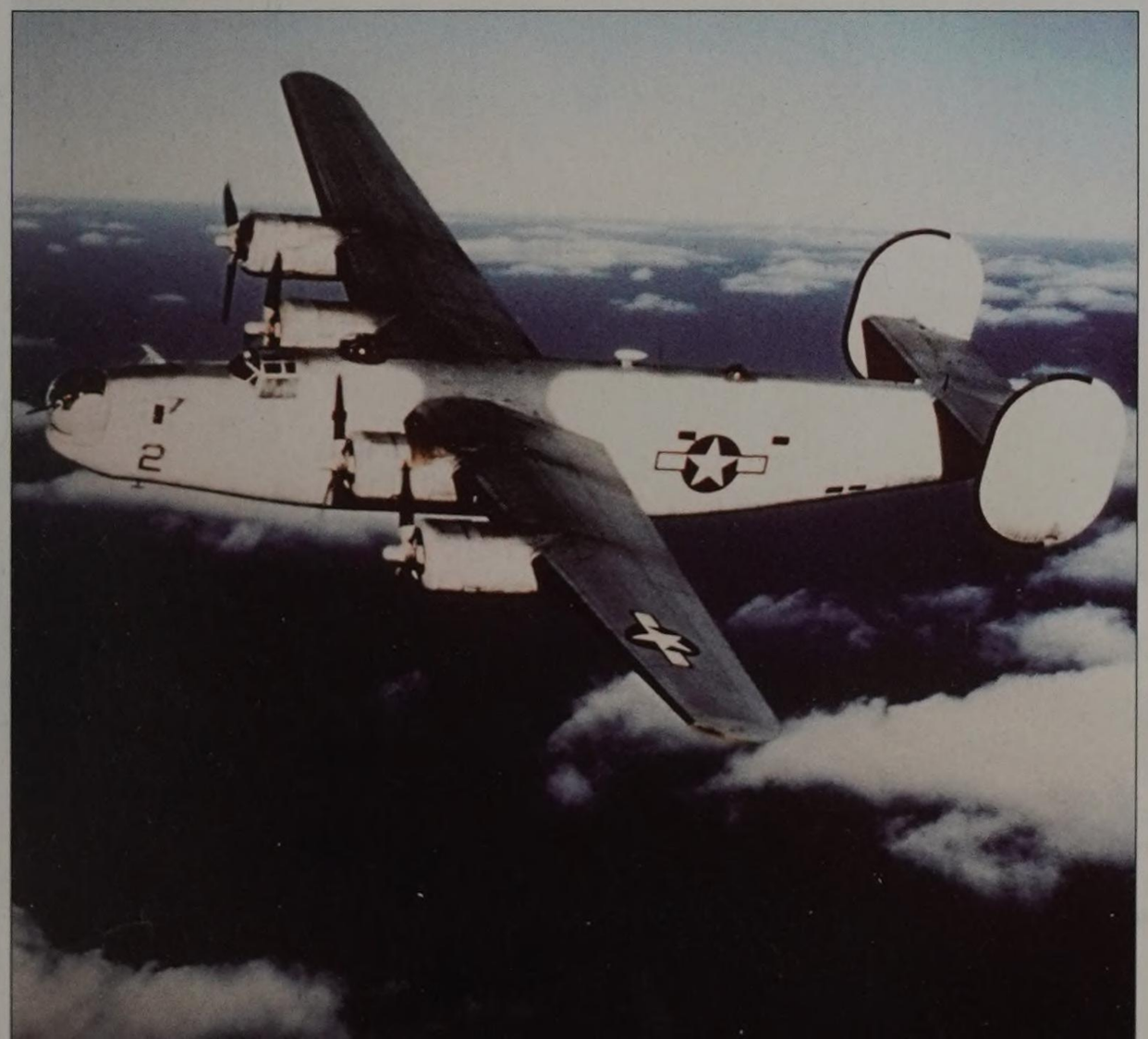
PB4Y-1 (Late)

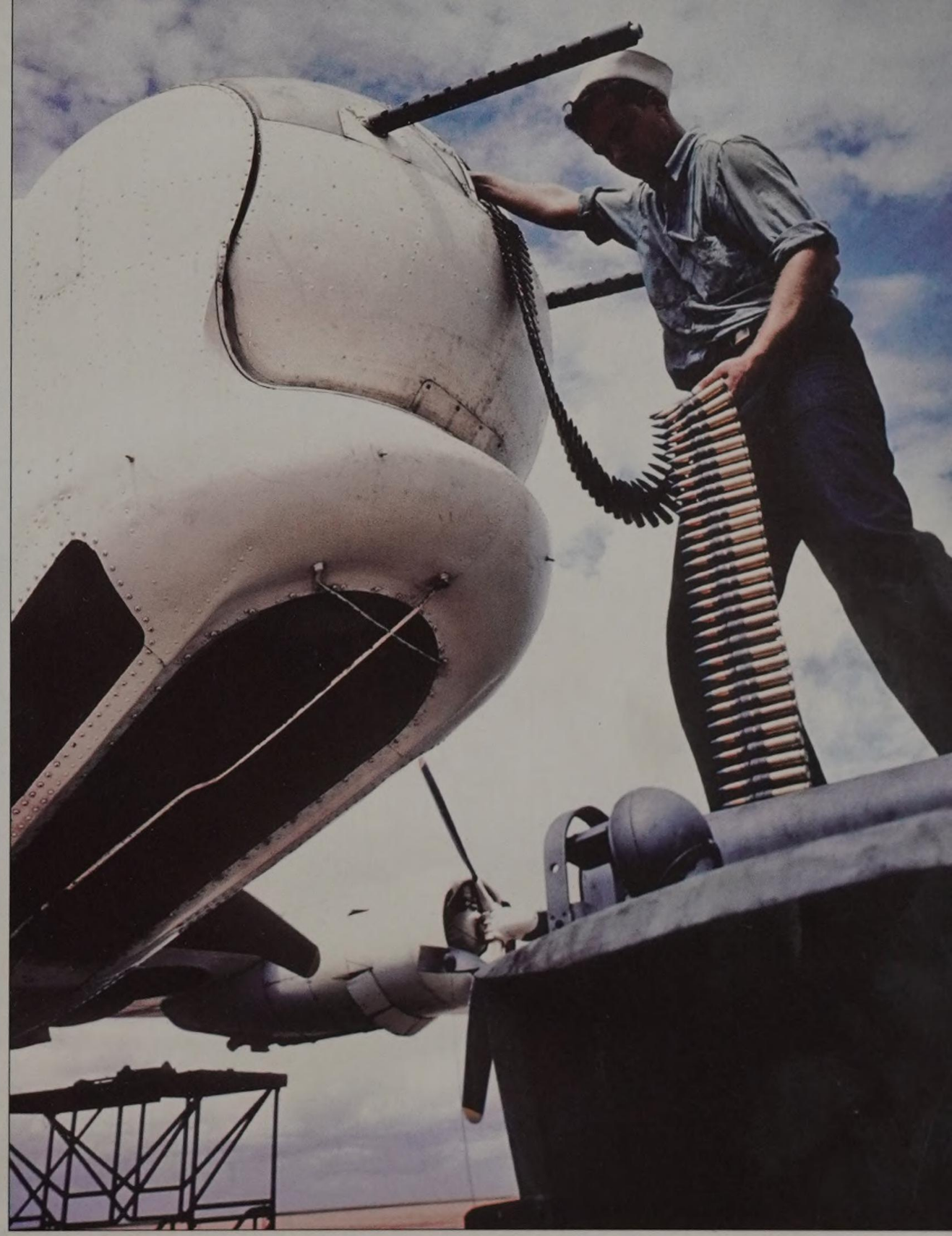
Following the early PB4Y-1s, which were basically B-24Ds in U.S. Navy paint and markings, the navy acquired quantities of the G, J, L, and M models of the B-24, also designating them PB4Y-1s. In addition to being fitted with Consolidated or Emerson nose turrets, Consolidated tail turrets, and Martin top turrets, a number of PB4Y-1s received Engineering and Research Co. (ERCO) type 250-SH nose ball turrets on the assembly lines. As seen in this photo of a PB4Y-1, the ERCO 250-SH comprised a 54-inch-diameter sphere, the top part of which was Plexiglas, which enclosed the gunner, his controls and sight, two .50-caliber machine guns, and ammunition magazines. The sphere was mounted on a cast magnesium-alloy rotating base and trunnions.



This PB4Y-1 displays the post-war markings used by VPB-61, which operated out of NAS North Island at San Diego, California.

A PB4Y-1 wears an antisubmarine camouflage scheme of what appears to be Dark Gull Gray on the wings and horizontal stabilizer and elevators, with a thin strip of that color on the top centerline of the fuselage. The remainder of the aircraft is Insignia White. On the nose is an ERCO 250-SH turret. A small dome is aft of the RDF antenna.

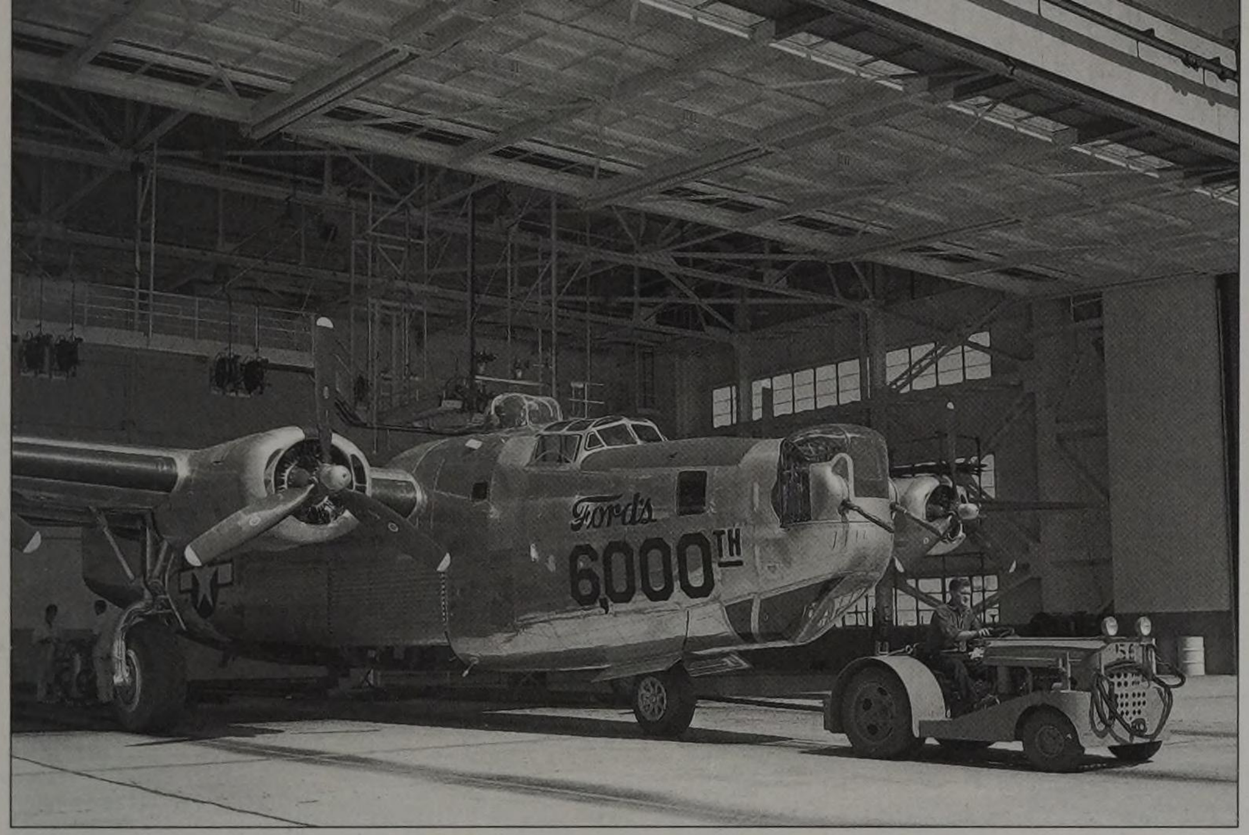




An armorer feeds .50-caliber ammunition into an ERCO nose turret on a PB4Y-1. The magazines inside the turret held 1,300 rounds of .50-caliber ammunition. To the upper left is the starboard trunnion of the turret. The ball of the turret elevated and depressed on the trunnions, and rotated on the base molded to the bottom of the trunnions.

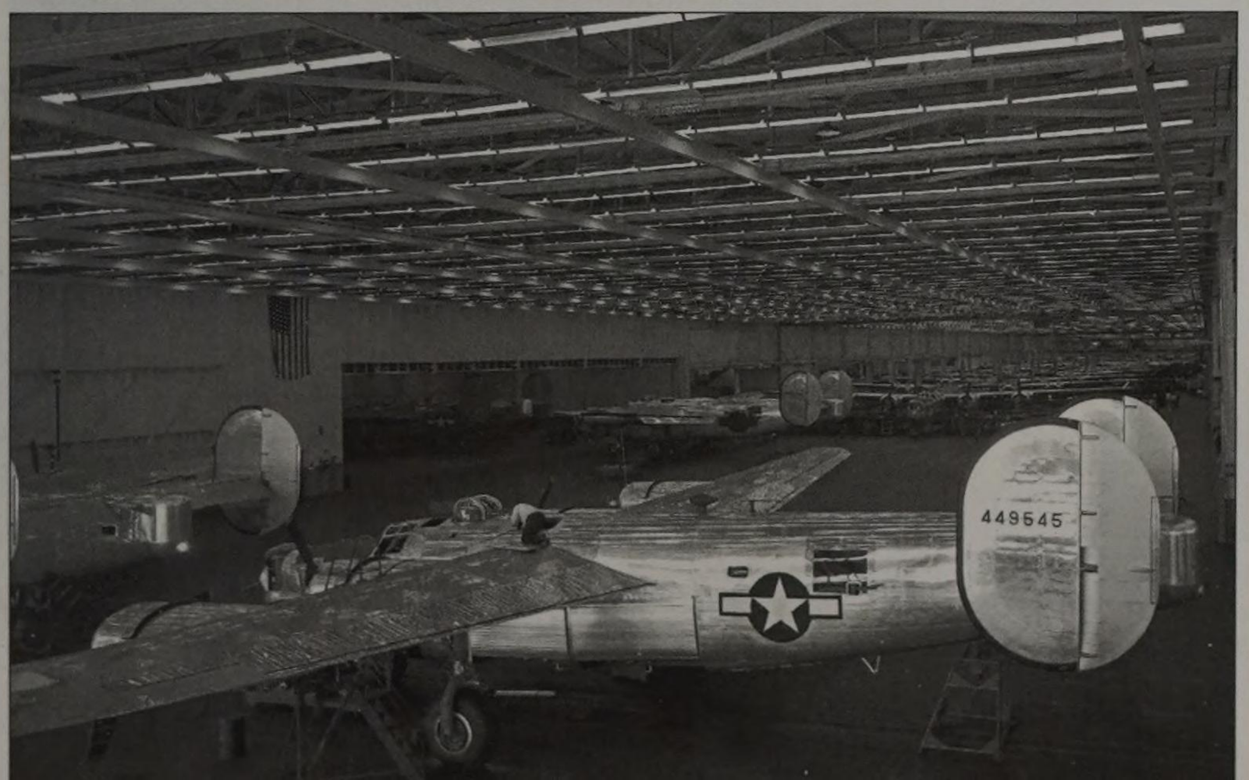
B-24L

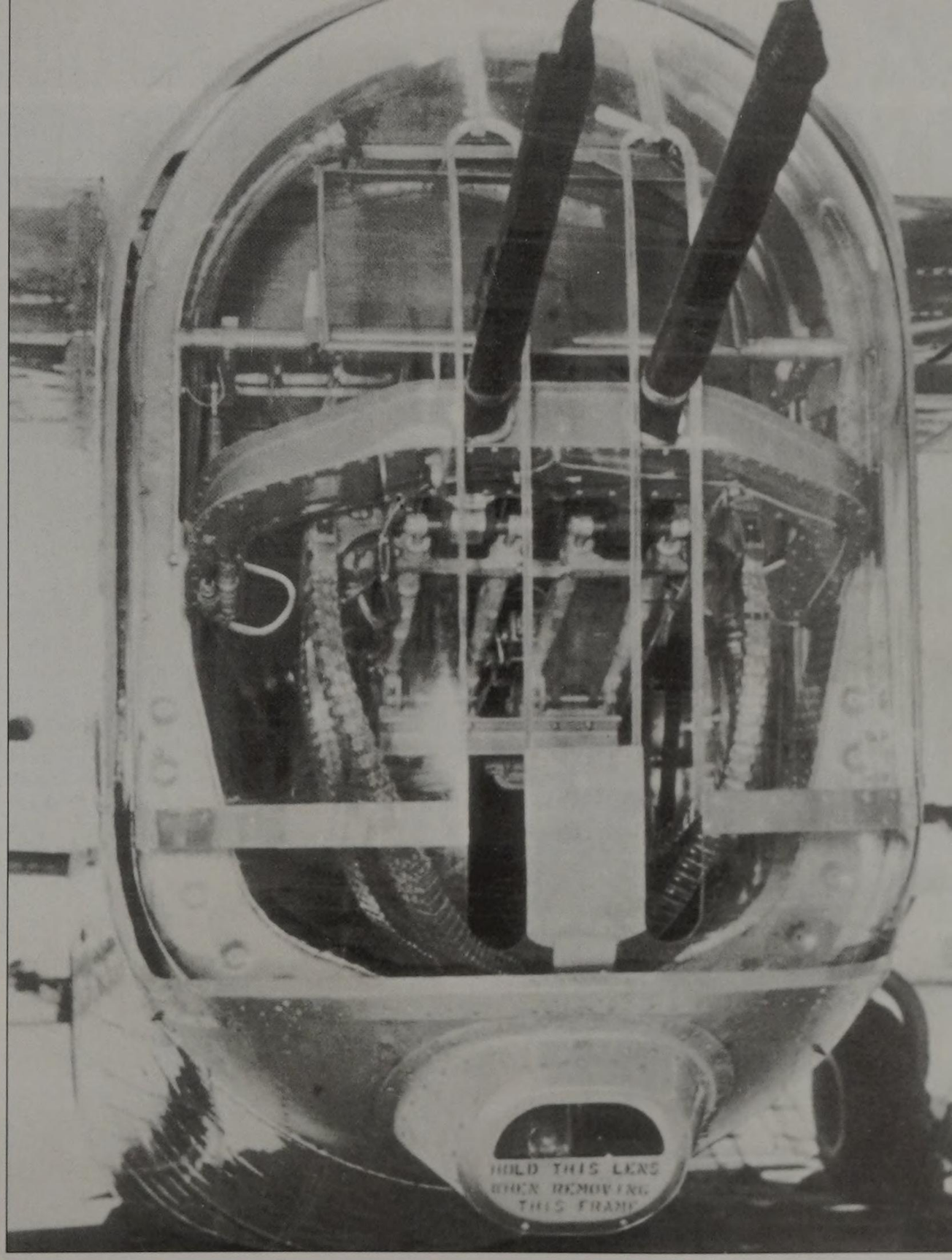
In mid-1944, when Convair's San Diego and Ford's Willow Run plants became the sole producers of Liberators for the U.S. armed forces, they introduced the B-24L as a lighter version than its immediate predecessors. Although it has been reported that the ball turret was deleted from the B-24L and replaced by twin, ring-mounted .50-caliber machine guns, some photos of B-24Ls show the ball turret present on the belly. Tail gun mounts were installed at modification centers to suit the theater of combat, with three options: the Convair M-6A "stinger" mount, a hand-operated twin–machine gun mount, or the Consolidated A-6B turret. Shown here is *Settin Pretty,* B-24L-1-CO serial number 44-41429, of the 308th Bomb Group, 375th Bomb Squadron, Fourteenth Air Force.



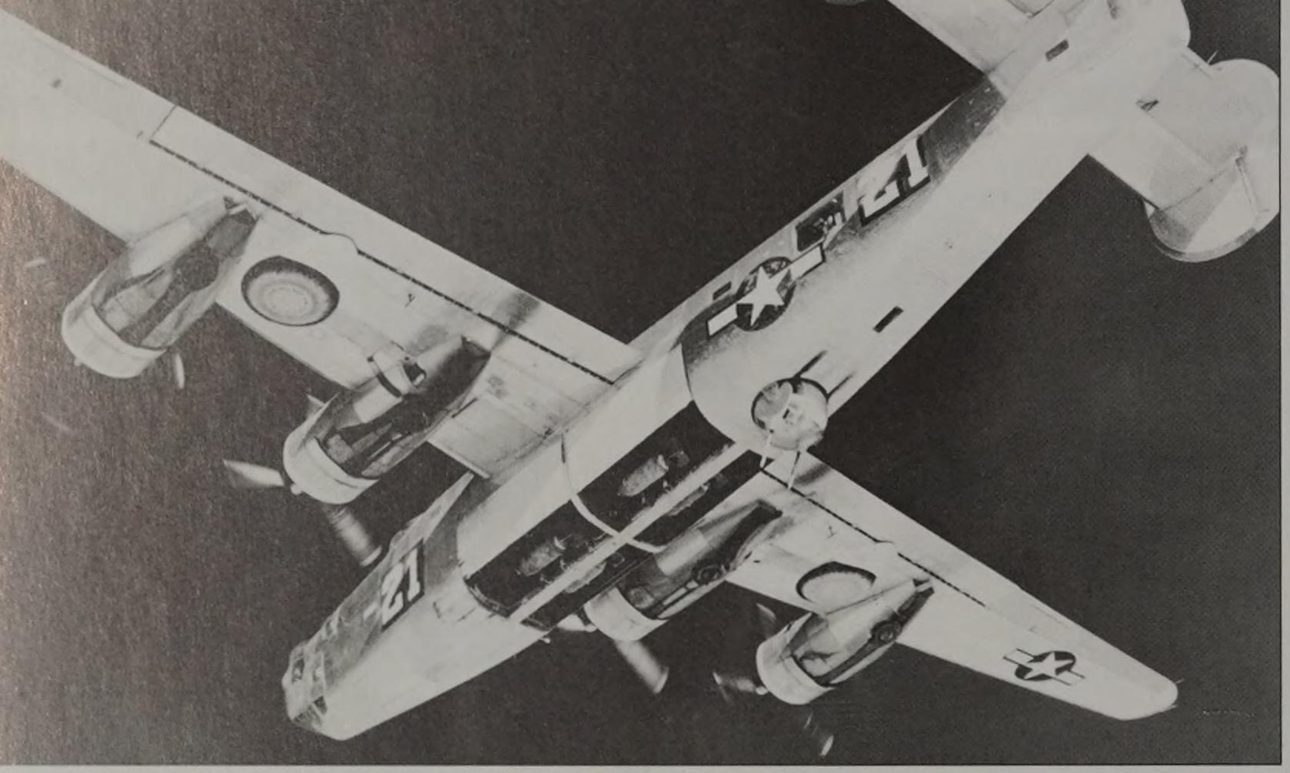
Ford's 6,000th **commemorated Ford's prodigious output of Liberators for the war effort, including knockdown kits provided to other plants for final assembly. This aircraft was B-24L-1-FO serial number 44-49219. The sliding window on the side of the cockpit is of a revised, bulged design instead of the earlier blister type.**

B-24Ls are nearing completion at the Willow Run plant. In the foreground is B-24L-10-FO serial number 44-49545. By a USAAF directive of 10 July 1944, Ford and Convair were to deliver B-24Ls without tail armaments, which were to be added at modification centers. Thus, the tail turret locations have aluminum fairings on these Liberators.





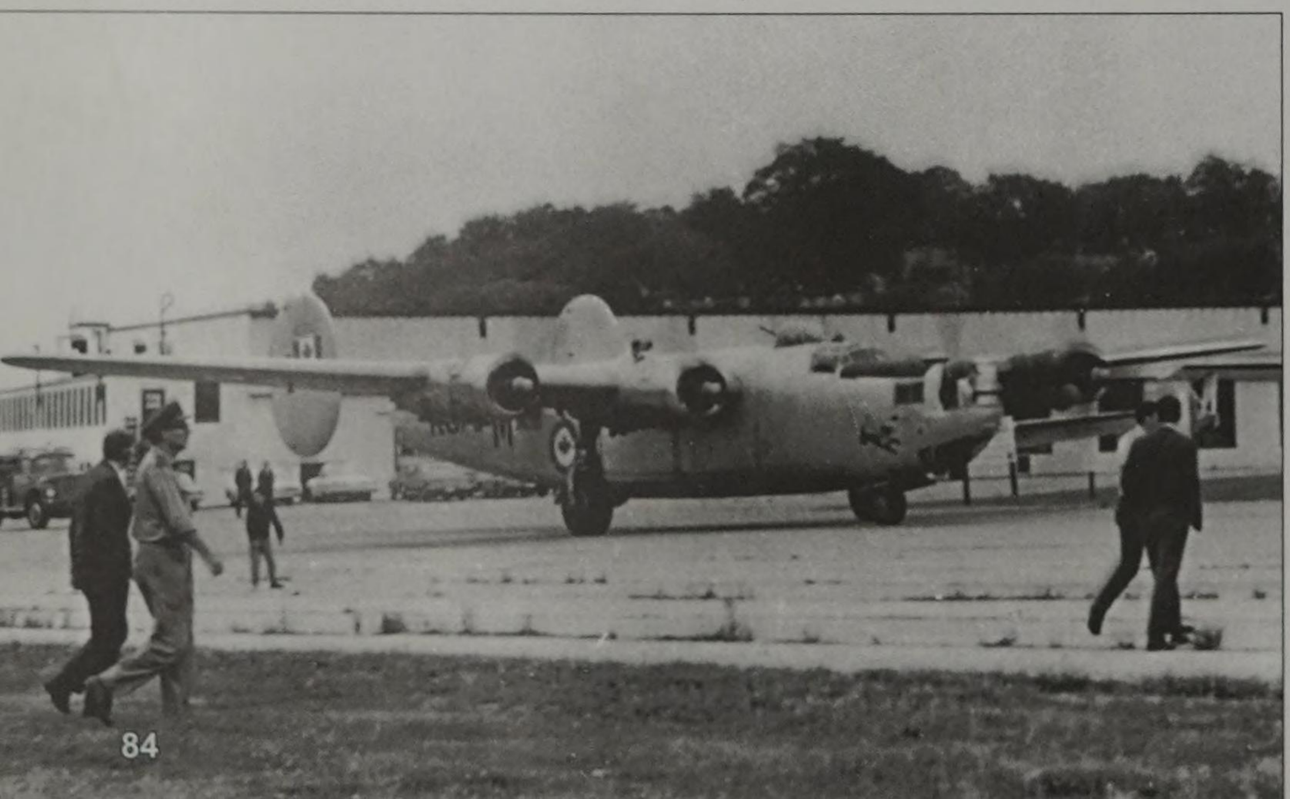
The Convair M-6A stinger was mounted on some B-24Ls. For example, of the 417 B-24Ls Convair produced, 41 were fitted with the M-6A stinger. This stinger comprised a Plexiglas housing with slots cut in it to allow the twin .50-caliber machine guns to elevate or depress. This housing swiveled from side to side in unison with the guns.



B-24L-10-FO Liberator serial number 44-49647 prepares to release its load of bombs on Vienna. Vienna and its environs were bombed 52 times during WWII, and unexploded bombs have been unearthed there as recently as 2011. This Liberator was assigned to the 724th Bomb Squadron, 451 Bomb Group, Fifteenth Air Force. (National Archives)

Pennsy City Kitty, was B-24L-5-CO serial number 44-41480, of the 307th Bomb Group, 370th Bomb Squadron, Thirteenth Air Force. This Liberator reportedly was formerly named *Kansas City Kitty* and at one time served with the Fifth Air Force. The scoreboard includes two enemy vessels sunk and 45 bombing missions completed.

B-24-L 44-50154 was delivered to the Royal Air Force in July 1945 as Liberator B Mk. VIII KN820. After World War II, the plane served with the Indian Air Force as serial number HE773. In 1968, it was transferred to Canada, and the photo shows it in Canadian markings. The plane is now at the Canada Aviation and Space Museum, in Ottawa. (National Museum of the United States Air Force)



The Royal Australian Air Force (RAAF) acquired 287 Liberators of all types, including 83 B-24Ls. This B-24L, originally assigned USAAF serial number 44-41635, carried RAAF serial number A72-118 toward the rear of its fuselage and served with the 7th Operational Training Unit. Forward of the bomb bays is what appears to be a radome. (National Museum of the United States Air Force)

B-24M

The B-24M was the last mass-produced model of Liberator. Except for a new, lightweight version of the Convair A-6B tail turret, it was similar in appearance to the B-24L. During production, the canopy was redesigned in a manner to improve the pilot's and copilot's visibility. With the war winding down, many B-24Ms went straight from the factories to storage facilities. This B-24M-20-FO, serial number 44-51113 and nicknamed *Mamy Yokum II,* was built at Ford's Willow Run plant and was assigned to the 307th Bomb Group, 424th Bomb Squadron, of the Thirteenth Air Force. Shortly after the end of World War II, it was consigned to storage at Kingman Airfield, Arizona.

As noted earlier, the ever-growing weight of the Liberator had hampered performance, a situation particularly troubling for combat-damaged aircraft. The B-24L had been an attempt to address this by deleting the ball turret and replacing the power-operated tail turret with manual guns. A powered tail turret returned on the B-24M, albeit in the form of the lightweight Consolidated A-6B. An Emerson power turret was installed in the nose. Production of the B-24M began in October 1944 and the aircraft were manufactured by Ford at Willow Run and by Consolidated in San Diego.

In most instances the 1,677 Ford-built B-24M aircraft can be distinguished by the very large, slightly protruding, window in the side of the nose, whereas most of the 916 Consolidated-produced B-24Ms had the smaller "standard" size side scanning window. From production block 20 onward, a revised cockpit canopy was utilized, providing considerably improved visibility.

While Ford would produce a single XB-24N (serial number 44-48753) and seven YB-24N aircraft, all sporting a large single tail, the B-24M was the final B-24 model to be mass-produced, or to see combat. The end of the war in Europe brought about the quick curtailment of Liberator production, with the last B-24M leaving Convair, San Diego, in June 1945. Cancelled before delivery were 124 Ford-built B-24Ms. With the B-29 Superfortress doing the brunt of the work in the Pacific, many of the new B-24Ms were flown directly to storage; some even were flown directly from the factory to Kingman, Arizona, for salvage.

The slab-sided fuselage of the B-24 made for a large canvas for nose art, and it was Liberators like *Windy City Kitty* that gave the bomber the nickname "the flying billboard." The nose art may have been inspired by Sgt. Jack Crowe's comic strip of the same name in *Yank* magazine. The aircraft was B-24M-30-CO 44-42362.

One of the B-24Ms transferred to the Royal Australian Air Force rests on the ground at Haneda Airfield, Tokyo, in 1946. The aircraft was B-24M-10-CO, serial number 44-41978, and bore the RAAF serial number A72-189. The aircraft's top turret has been removed and faired-over, and in the turret's place is an astrodome, relocated from aft of the nose turret.

A late-production Convair B-24M of the 424th Bomb Squadron, 307th Bomb Group, Thirteenth Air Force, flies over wetlands on a mission in the Southwest Pacific. The stylized "LR" on the circular insignia on the tail stood for the 307th Bomb Group's nickname, "Long Rangers." (Stain Piet collection)

Henry Ford II, who became president of Ford Motor Company in 1945, drives an aircraft tug towing the final Liberator built at Ford's Willow Run plant, a B-24M-30-FO, on 25 June 1945. Excellent details of the nose are visible, including the Emerson nose turret, the protective sleeves on the gun barrels, and the louvered air vents below the turret.

With the final Liberator built by Ford parked on a hardstand at Willow Run, members of the crowd sign their names on the side of the fuselage. The improved canopy with the simplified windshield introduced on the B-24M is in view, as well as the wide, bulged scanning window for the navigator, sometimes observed on late-model Liberators.

Benefiting from the XB-24K's single-tail experiments, the Convair PB4Y-2 Privateer was a new version of the U.S. Navy's Liberator designed for low-altitude maritime patrol and bombing applications. Features included non-supercharged R-1830-94 engines and waist blister mounts for twin .50-caliber machine guns. A total of 739 were built.

The Convair XR2Y-1 Liberator Liner was a one-off prototype passenger transport developed for the U.S. Navy, using the PB4Y-2's wings and landing gear, a single vertical tail, and a new fuselage. The aircraft could carry up to 48 passengers. Although the navy ordered 253 examples, the Liberator Liner never went into production.

Like the aircraft in this photograph, after the end of World War II, the Liberator quickly flew off into the sunset, with no real place in the postwar American military for this reliable but outdated bomber. In its many models and guises, the Liberator had served its purpose ably, as a durable, accurate, dependable, and long-legged emissary of U.S. airpower. Through the valiant efforts of its aircrewmen and ground crewmen, it contributed substantially to the Allied victory. And, thanks to the hard work of the employees of the five Liberator Production Pool plants, more Liberators – almost 20,000 of them – were produced than any other Allied bomber, and indeed, the B-24 stands to this day as the most numerous U.S. military aircraft ever produced.

B-24 LIB
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